2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

VDT-WPP 001/4 MAN 15,0 c 4. Edition

PES 8 A 95 D 412 LS2334 Z

RQ 250/1100 AB793DL 200-1100 AB794L ROV ROV 250-1100 AB907DL

11.73 supersedes MAN company:

engine:

D 2858.. M2 (304PS-1)

1-2-7-8-4-5-6-3 je 45°

"Z" M4 (275 PS - 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

See camshaft BMP 001/67

Port closing at prestroke

1.7 + 0.1

mm (from BDC)

control rod Fuel delivery travel cm³/100 stroke 2 3		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000 .	9	7,5 - 8,0	0,5			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ.. 793 DL

Checking of PRG check Coi trav rev/min mm	ntrol rod rel	Fult-load s Setting po rev/min		Test spec Cantrol rad travel		Idle spee Setting p rev/min 7	Control red travel	Test spe	cifications 5 Control rod travel mm	Torque o	Control rod (3)
600 1	5,7-16,3	600	16,0	1120 1150 1190 1250	15,2-15,6 9,0-13,8	570		300	6,6-8,1 4,3-6,4 0,4-3,0 0	1000	15,8-16,0 15,2-15,7

Ti rque-control travel on flyweight assembly dimension a = 0,15 mm

1140-1155 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

elivery on ontrol lever pp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	36)	Starting f	(COMIA?
cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	cm³/1000 strokes:/ mm 7 MMRW
115,0-118,0		800 500	116,0-120,0 max. 117,5		100 250	mind.20 6,0
						"Z" ./.
•	ontrol lever p. 40°C (104°F) cm³/-1000 strokes 2	ontrol lever (2) (3a) p. 40°C (104°F) (7) cm³/-1000 strokes rev/min (2) (3)	cm³/-1000 strokes rev/min rev/min 3 rev/min 4 800	cm³/-1000 strokes rev/min rev/min cm³/-1000 strokes 5 115,0-118,0 (3a) rev/min rev/min cm³/-1000 strokes 5	cm³/-1000 strokes rev/min rev/min cm³/-1000 strokes 5 115,0-118,0 (3a) rev/min cm³/-1000 strokes 5	Cm³/-1000 strokes rev/min rev/min cm³/-1000 strokes rev/min cm³/-1000 strokes rev/min cm³/-1000 strokes rev/min 6

B. Gov	ernor :	Settings	RQV				200-1100 AB 794					
Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Intermed	diate rated	speed 6	Control- lever deflection in degrees 7	- Lower rev/min 8	rated speed Control rod travel mm	Torque control Control rod travel mm 10 11			
ca.68	1145 1380	14,8-18,3				ca.12	150	6,2-8,0	1145	8,3		
ca.66	1100	15,0-18,0					250 350	3,8-5,8 1,1-3,1				
29	1180 1260 1360	8,0-13,0 0 - 7,6 0	•				500 640	0 -1,6 0				

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat.	Starting fuel delivery 5 4a Idle stop					
Test oil te rev/min 1	emp. 40°C (104°F) crm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	-Z - 2 - 100,5-102.5	500	800 500	103,5-106,5 max. 97,5	100 250	mind.18 6		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

150-1100 AB907D

Torque control 1 = 0.3mm

	r rated speed		Intermediate rated speed			(4)	Lower	rated speed	3 Torque control		
Degree of deflection of control lever	Control rod travel mm			5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm	
ca.50	1140	14,4-17,6				ca.13	100	7,6-10,2		0,6-1,2	
	1180 1220	7,8-13,0 ·0 - 8,2					200 300	5,7- 8,5 2,5- 5,4	900	3,4-3,8 5,6-6,0	
	1290	0					410	0	1140	8,3	
29		Torque	contr	n for	1140 = 950-50	0 mm 0 = 0,3	0,4 mm				

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	ill-load stop	6 Rotational- speed limitat.		rel delivery paracteristics	Starting f	uel delivery 5	4a) Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100 1100	115,5-117,5 -2 - Z - 100,5-102,5	1140-1155* 1140-1155* 1mmRW		114,5-117,5 103,5-106,5 max. 97,5	100 250 100 250	mind. 20 7,0 mind. 10 7,0			
		less			Cha	nge-over po	int 1	50-220 U/min	

Checking values in brackets En

2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

VDT-WPP 001/4

DAI 5,6 a Edition 3.64

En

PES 6 A 80 B 410 RS 174 1062 RQ 300/1425 A 400 D

supersedes

15.2 62

company: engine: Daimler-Benz OM 322

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
200	6 15 9	1,2 - 2,0 10,3 -11,4 2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider ock		Full-load s Setting po			cifications (4)	Idle sper	_		cifications (5)	Torque o	control 3
rev/min	Control rod trave! mm		rev/min	Control rod travel rnm	Control rod travel -mm	rev/min	rev/min	Control rod travel rnm	rev/min	Control rod travel	rev/min	Control rod (travel
1	2		3	4	5	6	7	8	9	10	11	12
1400	14 - 14	,8	1400	14,4	1550 1660	10,5-14 6,2-11,4 0 - 8		0	200 300 350 400 470	7 - 8 5 - 7 3,3-5,6 1 -3,8 0	500 700 900 1100	15,8-16,6 15,4-15,8 14,9-15,4 14,4-14,8

Torque-control travel on flyweight assembly dimension a =

U,5 mr

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	Full-load delivery on governor control lever fest oil temp. 40°C (104°F)		Control rod stop 3a Fuel d			ery characteristics	Starting f	uel delivery d Gontrei
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes;/ mm
1000	54,0-57,0		700		1400 700 500	55,5 - 58,5 56,0 - 59,0 55,5 - 59,5	100	mind.7,9

Test Specifications Fuel Injection Pumps and Governors

40

Edition 3.64

VDT-WPP 001/4 DAI 5,11

PES 6 A 80 B 410 RS 174 S 1062 EP/RSV 250-1300 AO A 391 D

supersedes

company:

13.4.62 Daimler-Benz

engine:

OM 321 A

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	9	4,1 - 4,5	0,4			
	6 15	1,2 - 2,0 10,3 -11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	deflection travel of control			4 Lower Degree of deflection of control lever	gree of Control rod travel			que control Control rod travel mm 11
ca.74	1300 1400 1450	12 8,2 6	withou spring		liary	ca.38	250 100 250	6,5 19 - 21 6,2-6,8	1280 1000 600	0 0,5-0,7 1,0-1,2
5	1400 1500 1600	7,2-8,8 2,4-5,4 0 - 3	with an spring	uxilia	ry		400 600 900	5,2-6,2 1 -4,3 0 - 1	300	1,0-1,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa Test oil temp rev/min 1	. 40°C (104°F)	Rotational-speed limitat. Note: changed to rev/min 3	cha	el delivery racteristics cm ³ /1000 strokes 5	Starting Idle rev/min 6	Sa Idle	Control rod travel mm
1280	54,5 - 56,5	1310-1330	1000 700 50°	54,5 - 57,0 57,0 - 60,0 53,0 - 57,0		250	6,5

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 OMB 4,4 b

Edition 3.72

PES 4 A 85 C 410 RS 2090 RQ 250/1200 AB588DL PES 4 A 85 C 410 RS 2195 PES 4 A 90 C 410 RS 2195 D RQ 250/1300 AB590DL RQ 250/1300 AB686 L RQ 250/1300 AB686 L	(2) company: (3) engine: (4)	1.68 OM Brescia (Büssing-OM) CO 2 D (1,2) CO 3 D (3) CO3D-Var23(4,5)
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All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

	! , 15+0 , 1				
avel *	cm ³ /100 strokes	cm ³ / 100 strokes	mm	Fuel delivery cm ³ /100 strokes 3 "C" 9Ø	SOUND NATION OF THE COLUMN TO
9	4,9 - 5,5		4,1-4,5	5,8 - 6,3	5,1 - 5,5
6 15	1,3 - 2,1 12,3 -13,1		0,6-1,4	2,5 - 3,4 13,6 -14,3	1,6 - 2,6
9	3,9 - 4,4		1,4-2,2	3,8 - 4,6	1,9 - 2,9
8	ontrol rod vel 9	m cm³/100 strokes 3 "C" 8,50 9 4,9 - 5,5 6 1,3 - 2,1 15 12,3 -13,1	Printrol rod level cm³/100 strokes 3 "C" 8,50 4 9 4,9 - 5,5 6 1,3 - 2,1 15 12,3 -13,1	Printrol rod livel Fuel delivery Cm ³ /100 strokes 3 "C" 8,50 4,1-4,5 4,1-4,5 6 1,3 - 2,1 12,3 -13,1	Printrol rod level Fuel delivery Cm³/100 strokes Cm³/100 str

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250/1200 AB588DL

(1)

PRG che	ck Control rod travel	Full-load s Setting po rev/min 3		Test spec Control rod travel	rev/min	Idle spee Setting p rev/min 7	coint Control rod travel	Test spe	cifications 5 Control rod travel mm 10	rev/min	Control rod (3)
1100	14,6-15,4	1100	15,0		14,8-15,0 10,0-15,0 5,4-12,0 0 - 7,0	490	0	100 150 250 350 390	5,3-7,4 4,7-6,8 2,8-4,8 0 -1,6	400 600 800 900	15,8-16,7 15,5-15,9 15,1-15,5 15,0-15,2

Torque control travel on flyweight assembly dimension a = 0,3

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil ten	elivery on ontrol lever ap. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for	Control
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm
1180	66,2 - 68,2	600	900 600	61,7 - 64,7 56,5 - 59,5	100	ca. 15mm RW
						./.

Checkin	g of slider	gulation		Idle speed regulation				Torque control			
PRG che	Control rod travel	Setting por rev/min 3	Centrol rod travel mm	Test spec Control rod travel mm 5	rev/min	Setting property for the setting property for	Control rod travel		cifications (5) Control rod travel mm		Control rod travel mm 12
1150	14,7-15,3	1150	15,0	1200 1250 1300 1370	0 - 7,5		0	100 200 300 440	6,5-8,1 5,2-7,2 3,0-5,2 0	500 600 700	15,7-16,2 15,2-15,6 15,0-15,3

4113				1250 1300 1370	7,0-1 0 -	7,5		300 440		-7,2 -5,2 0	600 700	15,2-15,6 15,0-15,3
0		trol travel t assembly dimension	a =	0,3 _{mm}	Pum		egulation At		veri	nor		1 mm less control rod travel
Testoil-IS		elivery on ontrol lever np. 40°C (104°F)	2)	Control rod sto	° (3a)	Fuel delive	ery character	istics	3 b	Starting for	d	Control rod travel
est	rev/min 1	cm ³ /-1000 strokes 2	l	rev/min 3	****	rev/min 4	cm ³ /-1000	strokes		rev/min 6	cm ³ /1000 7) strokes / mm
	1180	69,5 - 71,5		600		900 600		- 68, - 64,		100	ca.15	mm RW
	1180	66,0 - 68,0		600		900 600		- 64, - 61,				

Checking values in brackets

B. Governor Settings

(3) 250/1300 AB590DL

Checking PRG che rev/min 1	ck Control rod travel	T	rnt Control	Test spec Control rod travel		Idle spee Setting p rev/min 7	Control rod travel		Control rod		Control rod (3) travel mm 12
1250	14,7-15,3	1250	15,0	1300 1340 1380 1450	14,7-15,0 8,0-13,0 0 - 6,0 0	550		200	7,0-8,1 5,8-7,7 3,5-5,7 0 -2,5	700	15,8-16,0 15,4-15,7 15,0-15,2

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ten	elivery on control lever np 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics 3b	Starting for Idle spee	gel delivery G Control red travel
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1280	71,5 - 73,5	500	1000 700 590	67,5 - 70,5 66,5 - 69,5 60,5 - 63,5	100	ca. 15 mm RW

B. G	overnor S	etting	38		250/120	250/1200 AB686L			(4) OMB		-3-
Checkin PRG che rev/min 1	Control rcd travel	Full-load Setting po rev/min 3		•	rev/min	Idle spe Setting p rev/min 7	point Control rod travel	Test spe	control rod travel mm	rev/min	Control rod travel
600	15,6-16,4	600	16,0	1200 1220 1250	15,7-16,0 15,6-16,0 10,0-14,9		0	100 200 300	6,9-8,1 5,7-7,7 3,4-5,7		-

400

460

0 - 2,6

0

Torque-control travel on flyweight assembly dimension a =

before n = U/min.

Breakaway not

Speed regulation At

0 - 8,3

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

1300

1360

	elivery on control lever np 40°C (104°F)	Control rod step 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm
1200	81,0 - 83,0		800	78,5 - 81,5	100	ca.21 mm RW
(4) 1200	79,0 - 81,0	1200	800	74,5 - 77,5		

Checking values in brackets

B. Governor Settings

250/1300 AB686L

(5)

Checking of slider PRG check	eed regula nt Tes				Idle speed regulation Setting point Test specifications (5)				Torque control		
Control rod travel mm 2	re	Control Cont od travel rod i mm mn	travel		rev/min		rev/min	Control rod travel mm 10		Control rod travel mm	
600 15,6-16,4 Breakaway not before n = 132		13	300 15,7-1 320 15,5-1 350 10,2-1 400 0 -	6,0	570		200	6,6-8,1 5,7-7,9 3,8-9,8 0 -2,7	-	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics	Starting f	uel delivery
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm
1300	82,0 - 84,0		800	77,0 - 81,0	100	ca. 21 mm RW

Test Specifications Fuel Injection Pumps 2 and Governors

VDT-WPP 001/4 DAI 5,1 i Edition 3.64

PES 6 A 80 B 410 RS 174 1062 RQ 250/1500 A 368 D

supersedes

1.5.61

company: engine.

Daimler-Benz OM 321 mA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestrc':e

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6 15	1,2 - 2,0 10,3 -11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load s Setting po rev/min 3		gulation Test spec Control rod travel mm 5	rev/m	(.)	Idle spec Setting p rev/min 7	-	Test spe	cifications 5 Control rod travel mm		Control (3) Control rod travel mm
1450	14-14,8	1450	14,4	1500 1520 1540 1560 1640	10 · 5 ·	- 14,4 - 14,4 - 12 - 9,5	510	0	100 200 250 300 410	4,8-6,9	700	15,6-16 15,1-15,4 14,4-14,8

Torque-control travel on flyweight assembly dimension a =

0,5 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	3 b	Starting f	ing fuel delivery speed		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	Control rod travel cm ³ /1000 strokes:/ mm		
1000	53,0 - 55,0	500	500 700 1480	52,0 - 56,0 53,5 - 56,5 55,0 - 58,5					

VDT-WPP 001/4 DAI 4,6 1 1 Edition 3.64

PES 6 A 70 B 410 RS 64 RQV 250-350/1500 A 139 RS 64 z* 1034

supersedes

1.5.61

company: engine:

Daimler-Benz

OM 312 OM 321*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6 18	1,2 - 1,9 11,1 -11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	peed		Intermediate	rated sp	eed	Lower rated	speed		Clidica standard	
deflection	rev/min Control rod travel	Control rod (la)	Degree of deflection of control	travel		Degree of deflection of control		Control rod travel	Sliding sleeve travel	
lever	mm	rev/min (2a)	lever	rev/min	mm 4	lever	rev/min	mm ③	rev/min	mm
<u> </u>	2	3	4	5	6	7	8	9	10	11
62±1,5	1550	15 - 18 9 - 14 2,6- 9,8 0 - 5,5	42±1,5	300 400 500 1250 1430	14,7-15,3 9,5-15 3 - 4 3 - 4 0	10±1,5	250 300 350 430	6 - 8 4 - 7 1,5-4,5 0		
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten	elivery d stop np. 40°C (104°F) 2	Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a	idle	fuel delivery 6	Inter- mediate	
rev/min 1	cm ³ /1000 strokes . 2	rev/min 48)	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	SPEEC rev/min 8	
1000 1000	43,5 - 45,4 49,5 - 51,5	1510-1530			100	mind.7,9	350	
			ů.					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 DAI 8,3 s Edition 3.64

En

PES 6 A 80 B 410 RS 64

RQ 250/1000 A 270 D

1034

supersedes 3.1.61

company

Daimler-Benz

OM 315 (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,6 -12,8				<u> </u>
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	ck Control rod travel	Full-load s Setting po rev/min 3	•	•	rev/min	4)	Idle spec Setting p rev/min 7	Control red travel		cifications 5 Control rod travel mm		Control rod (3) travel mm
600	14,6-15,4	600	15	1000 1010 1030 1050 1100	7 - 0 -	15 15 13 10	540	0	200 250 300 400 440	6 -8,1 5 -7,2 2,6-6 0 -2 0	450 500 550	15,6-21 15,2-15,7 15 -15,3

Torque-control travel on flyweight assembly dimension a =

0,3

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	Control red travel cm ³ /1000 strokes:/ mm	
980	82,5-84,5	500	500 700	80,2-83,2 81,7-84,7		100	mind. 13,4	
				;				

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 DAI 4,6

En

supersedes

PES 6 A 70 B 410 RS 64

RQV 250-650/1400 A 175

company: Daimler-Benz

engine: OM 312

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2 •	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	6	1,2 - 1,9			1,6	
1000	12 18	6,5 - 7,0 11,1 -11,9	0,4			
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection	deflection Control travel of control rod travel mm			Intermediate Degree of deflection of control lever 4	rated sp rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3			
62±1,5	1400 1420 1450 1480 1530	10 - 7 - 3 - 0 - 0	13 11 8 6	42±1,5	650 750 850 1250 1350	8 -10,4 3,8- 7 3,8- 4,3 3 - 4,3 0		100 250 400 550 660	7 - 8 6 - 8 4 - 6,3 1 - 4,5	ı	•	

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	3		Idle	fuel delivery 6	Torque- travei	Control roo
rev/min	cm ³ /1000 strokes .	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1000	45 - 47	1405 - 1420					650	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KM, Kundendienat, Kfz-Ausrüstung. C by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany. Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH. Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 HAN 5,2c

supersedes

company:

Hanomag, Hannover

engine:

D 55

PE 4 A 75 B 420 RS 87 RQV 250...600 A 78 37 A 15 1063 A 78

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.4 + 0.1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strckes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	3,0 - 3,4	0,3			
700	12 15	6,1 - 6,4 8,5 - 9,3				
200	9	2,1 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	e rated sp	eed	Lower rated	speed			Slidings	leeve travel
deflection	rev/min Control	ישאפוז 🔍	Degree of deflection		Control rod travel	Degree of deflection		Control r travel	od		1
	rod travel mm	rev/min (of control lever	rev/min	mm 4	of control lever	rev/min	mm	3	rev/min	mm
1	2	3	4	5	6	7	8	9		10	11
66±1,5	600 620 660 700	16 - 18 9 - 15 0 - 7 0	-	-	-	10±1,5	100 200 300 400 430	5 - 2,5-	7,6 7,2 4,2 1,3		
						3a					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		limitation intermediate speed	high idle s	very characteristics 5a peed 5b	Starting Idle awitchin		Torque- travel	Control Control rod
rev/min	cm³/1000 strokes .	rev/min 4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
600	94,0 - 96,0	600 - 620						

Chocking values in brackets

* 1 mm less control rod travel than col. 2

1.10.1952

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Imprimé en République Fedérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HAN 5,7 b Edition 10.64

PE 4 A 75 B 420 RS 87 S 1063

RQV 200-650 A 78 250-650 A 78 * 250-675 A 78 ** supersedes 20.7.60 Hanomag

engine: D 57

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke 2	2,4 0,1	mm (from BDC)		•	
Rotational speed rev/min		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9	2,8 - 3,4	0,4			
	6 15	0,6 - 1,1 8,3 - 9,3				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	e rated sp	eed	Lower rated	speed	4	Slidings	lesve travel
deflection	deflection Control travel		Degree of deflection of contro.		Control rod travel	Degree of deflection	Control rod travel		1 0	
		rev/min (lever 4	rev/min 5	mm 4	of control lever 7	rev/min 8	mm 3	rev/min	mm 11
66±1,5	650 550 700 740 760	15 - 20 13 - 18 4 - 11 0 - 1				10±1,5	100 200	6,3-8 4,3-6,5 2,3-4,8 0 -1,6		
						3 a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roi Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 58 tosed 50	Starting Idle switchin		Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
650	93 - 95	660 660* 680** 760***			•			
								./.

Checking values in brackets

* 1 mm less control rod travel than cci. 2

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Auerüstung.
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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Upper rated s	Upper rated speed			rated sp	ed	Lower rated	speed		Stirting et	beve travel
Degree of deflection of control	ection travel			deflection travel			Degree of deflection of control			ontroi travel
lever	rey/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

	-	<u> </u>	-	<u> </u>	<u> </u>	<u> </u>	ļ°	3	10	Ш
				RQV 25	50 - 650 A	78 *				
66±1,5	650 680 720 760	14 - 17,5 7,8- 13 0 - 6 0				10±1,5	200 250 400 460	5 - 7,3 4 - 6,1 0,4= 1,8 0		
				QV 250	O - 675 A	78 **				
	67"	44 0 47 4		•			200	6270		
66±1,5	675 700 740 790	14,8-17,4 8,8-13,2 0 - 7 0				10±1,5	300 400 480	6,2-7,8 3,2-4,7 1,2-2,8 0		
			RC	V 250	- 750 A 7	<u> </u> 78**				
66±1,5	750 760 800 840 880	14,2-17,4 12,2-16,6 5 -10,4 0 - 5 0			Q	10±1,5	100 200 300 400 480	7 - 9,2 5 - 8,4 2,4- 4 0,6- 2,4		
	T		,					T	T.	

②

Test Specifications
Fuel Injection Pumps 2
and Governors

40

VDT-WPP 001/4 BOS 10.9 1

En

PE 6 A 90 B 312 LS 314 S2044 RQ 200/1000 A 423 B

supersedes

6.10.61

company:

Büssing

engine:

U 11/200

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.15 + 0.1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12	10,3-10,7	0,4			
	9	6,0-6,5				
200	9	3,9-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 .	hecking of slider PG check Full-load speed Setting point				egulation Test specifications 4			ed regula		cifications (5)	Torque control			
rev/min	Control rod	rev/min	Control rod travel mm	Control red travel mm	rev/min	(4)		Control red travel	rev/min	Control rod travel	rev/min	Control rod travel mm 12	_. ම	
450 Bre bef	15,4-16 akaway not ore 1020	450	15,7	1020	13 - 6 - 0 - 0	13,4 13 9	420	0	100 150 200	6 - 8 5 - 7 3,4-5,6 1,3-3,7	400 600 800 950	15,6- 15 - 14,1-	16 15,4 14,5 13,8	

Torque-control travel on fly:veight assembly dimension a =

0,8 _{mm}

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	Full-load delivery on governor control lever est oil temp. 40°C (104°F)		Control rod stop	Fuel deliv	ery characteristics	Starting fi Idle spee	uel delivery d	6
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6		travel
1000	107,0-109,0		500	500 700	121,5-125,5 115,0-119,0	100	mind. 15	

Checking values in brackets

BOSCH

2

estoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

VDT-WPP/001/4 BOS 10,9 m Edition 10.64

Ξ'n

supersedes

6,10.61

company:

Büssing

engine:

S 11/200

PE 6 A 90 P 412 RS 315 S 2044

5 RQ 200/1000 A 424 D 4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	10,3 - 10,7	0,4			
1000	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG chec		Full-load s Setting po	•	_	cifications (4)	Idle spec	_		cifications (5)	orque o	(3)
	Control rod travel mm	rev/min 3	rod travel	Control rod travel rmm 5	rev/min	rev/min	Control rod travel rnm 8	rev/min	Control rod travel mm	rev/min	Control rod travel
	13,1-13,7 akaway not ore 1020	980	13,4	10/10	0 - 9		0	3	6 - 8 5 - 7 3,5-5,8 1,5- 4	400 600 800 950	15,6-16 15 -15,4 14,2-14,6 13,3-13,8

Torque-control travel on flyweight assembly dimension a =

0,9

Speed regulation. At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	- /51.	Starting fuel delivery		
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes:// mm 7	
1000	108,5-110,5	500	500 700	121,0 - 125,0 116,0 - 120,0			

@

Test Specifications Fuel Injection Pumps 2 and Governors

40

VDT-WPP 001/4 BOS 10,9 h

Edition 10.64

=

PE 6 A 90 B 412 RS 315 2044 RQ 200/1000 A 364 D

supersedes

1.5.61

company:

Büssing

engine:

S 11/200

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	10,3 - 10,7				
	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG check 1 Sett	oad speed re	gulation		Idle spee	d regula	tion		Torque o	
	ng point	Test specif	fications (4)	Setting p	oint	Test spe	cifications (5)		(3)
rev/min mm rev/	Control rod travel mm	1	rev/min	rev/min	_	rev/min 9	Control rod travel mm	rev/min	Control rod travel
1 2 3	4	5 6		. /	8			11	
950 14,6-15,4 9 Breakaway not before 1020	50 15	1020 1040 1060 1110	14,8-15 8,6-14,4 0 -10,6 0		0	100 200 300 320	6,3-8,1 3,8- 6 0 -1,5	500 600 750	15,9- 16 15,5-15,9 15 -15,2

Torque-control travel
on flyweight assembly dimension a =

0,3

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed Control		
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes;/ mm 7	
1000	114,0-116,0	500	500 700 900	116,0-120,0 113,5-117,5 115,0-119,0				

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 8.73

PES 6 A 75 C 320 RS 1254 EP/RSV 250-1350 A2 B571

supersedes

5.70

company:

Saviem

engine

597

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

control-rod travel 9 and 21 4.5-5.5°

6,2 - 6,6	0,4			
	Ā	i	1	
3,2 - 3,7 8,5 - 9,5				
1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rad travel mm	Lower Degree of deflection of control lever	rated spe rev/min 8	Control rod travel mm	3 Tor	control Control rod travel mm
ca.54	1350 1430 1500	16,0 10,2 3,8	without	auxil	iary spri	ca.19 ig	250 100 250	6,7 19 - 21 6,4-7,0	1330 450	0
5	1450 1500 1600	6,4 - 9,7 2,0 - 5,9 0 - 1	with au	xiliar	y spring		320 450	3,0-4,8 0 - 1	300	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ead stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	5a Idi	e stop
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 3 / 1000
1300	53,0-55,0	1370	500	41,5 - 44,5	100	ca.20mmRW	250	7,5-11,5

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 IHC 2,2 e Edition 10.64

En

PES 4 A 50 B 420 LS 105

EP/RSV 250-950 A 4/17 D

supersedes company.

8.57 IHC

S1162

A 4 B 17DR

engine:

DD 132

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.7 0.1

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	12	2,2-2,7	0,3			
	9 18	0,9-1,4 4,5-5,2				
200	9	0,6-1,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	3 Tor rev/min 10	que control Control rod travel mm
ca.55	950 990 1020	16 10,6 5,4	without	auxil	iary spri	ca.22 g	250 100 250	5,5 19 - 21 5,2-5,8	930 800 700	0 0,4-0,6 0,6-0,8
5	1000 1050 1100	6,4-10,2 2,2-4,1 0,3-1,8	with au	xiliar	ry spring		300 400 550	4,2-4,9 0,8-3 0 -1	300	0,6-0,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	oad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	5a) Idle stop	
Test oil ten rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
930	28,2-30,2	960 - 970	500 700	28,2-31,2 29,7-32,2				

Checking values in brackets

2

Test Specifications Fuel Injection Pumps (2) and Governors

40

VDT-WPP 001/4 KRU 7,2 c Edition 2.64

177

PE 5 A 85 B 320 LS 215 459 RQ 400/1850 A 211 D

supersedes 1.11.56

company: Krupp
D 573 M

PE 8 A 85 B 320 S 2068

A 211 DRE

Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC; mark port opening at cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3				
200	6 12 9 21	0,5 - 1,2 6,4 - 7,4 1,1 - 1,9 10,6 -12,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	Control rod	Full-load s Setting po rev/min 3	•		rev/min	Idle spec Setting p rev/min 7	Control rod travel	Test spe	cifications 5 Control rod travel mm	rev/min	Control rod (3)
1800	12,4-13,2	1800	12,8	1860	12,6-12,8 10 -12,8 0 - 7 0	800	0	200 400 600 700	7,6-8 4,7-7,4 0 -2,6	1000 1200	15,6-16,1 15,1-15,4 14,5-14,8 13,1-13,4

Torque-control travel on flyweight assembly dimension a =

 $0,95 \pm 0,05$

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes		rev/min 6	cm ³ /1000 strokes:/ mm	
1800	78,0 - 79,0	1200	1200 1830	81,0 - 83,0 mind. 76,5				

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4

Edition 5.1.67

En

PE 6 A 90 C 320 RS 2177 EP/RSV 250-1100 A1 B 467 DR

supersedes

company

Berliet

engine.

M 635 - 40 AD

Test with overflow valve and "A" lines (6 \times 2 \times 600)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,35 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 7,9	0,5			
	6 15	2,9 - 3,7 16,0 -17,3				
200	6	1,1 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	3 Tor	que control Control rod travel mm
ca.60	1100 1140 1190 1150 1200 1280	16,0 12,4 6,0 10,0-12,0 2,4-6,5 0 - 1	withou spring with a spring	ut aux	iliary ary	ca.25	250 100 250 320 420	6,2* 19 - 21 6,0-6,4 2,0-4,2 0 - 1	750 270	0 0,8-1,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop .			Starting Idle	fuel delivery	5a Idle stop		
Test oil temp rev/min 1	2 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	125,5-128,5	1120 1070*		·	Idle 250 *Set qua	21mm RW * 2,3 - 2,7 ting in accontity in Co	225 ordanc umn C	7,0 e with 7 .

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

Edition 23.6.64

En

PE 6 A 90 C 410 RS 2125 S 2229

EP/RSV 250-1100 A 1 B 205 DL

supersedes

company engine

Lancia 516 000 520 000

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,4 + 0,1

mm (from BDC)

			(110111 000	• •		
Rotational speed	Control rod travel	End of pump delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	9	5,9 - 6,5				
	6 12	2,0 - 3,0 9,5 -10,5	1			
200	9	3,0 - 4,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control lever 4	rated spe rev/min 5	ed Control rod travel mm 6	Degree of deflection of control	rated spe rev/min 8	Control rod travel mm	3 Tor	que control Control rod travel mm 11
ca.60	1100 1140 1180	16 12,2 7	without	auxil	iary spri	ca.25 ng	100	6,0 10 - 21 5,7-6,3	1000 800 600	0 0,4-0,6
5	1140 1240 1340	6,0-9,8 1,0-3,8 0,3-1,0	with au	xiliar	y spring		350 450 550	3,5-4,7 0 -2,9 0 -1,0	380	0,6-0,8 0,6-0,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.	6 Rotational- speed limitat. 3a Fuel delivery characteristics			fuel delivery	5a Idle stop	
Test oil temp rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm 9
1000	113,5-116,5	1110-1120		113,0-117,0 112,0-116,0	100	15mm RW	-	-

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 HAN 2,8t 3 Edition 10.64

En

S 1017 PE 4 A 65 B 310 LS 470 S 1040

EP/RSV 250-1100 A 1 A 97 D 250-1200 A 1 A 97 D supersedes company:

10.62

engine.

Hanomag D 28R 442

Note back

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port crosing at prestroke

2.3 + 0.1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel imm	Fuel delivery cm ³ /100 strokes 3 •	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2				
	6 18	1,4 - 2,1 9,7 -10,6				
.200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-1100 A 1 A 97 D

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever 4	rated spe rev/min 5	ed Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm	3 Tor rev/min 10	que control Control rod travel mm
ca.68	1120 1180 1230	16 11 ^W 6	ithout a	uxili	ary spring	ca.29	250 100 250	6 19 - 21 5,7-6,3	1100 900 700 400	0 0,5-0,7 0,8-1,0 0,9-1,2
5	1200 1250 1300 1400	7 - 10 3,3-5,8 v 0,5-3,2	ith aux	iliary	spring		350 400 450 600	4 -5,3 2,5-4,5 0,6-3,6 0 - 1	400	0,5 1,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop			Starting Idle	fuel delivery	(5a) Idle stop		
Test oil temp rev/min 1	. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	38,2-40,2	1120	700 400	40,0-43,0 40,5-43,5				
								./.

Checking values in brackets

corresponds to

(1)

1. Governor-spring adjustment

Upper rated speed			Intermediate rated speed			Lower rated	speed	Sliding sleeve travel		
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travei	Degree of deflection of control		Control rod travel	Torque-control travel	
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

1 1 1 1 1 1 1 1	1300 6,8 1280 7 - 10	without auxil	iary sprir	ca.29 g	200 250			0 0,3-0,5 0,7-0,9 1-1,2
-----------------	-------------------------	---------------	------------	------------	------------	--	--	----------------------------------

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

	, ,		
2.	Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3.	Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4.	Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5.	Adjustment of breakaway	corresponds to	(6)
6.	Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7.	Idle adjustment	corresponds to	(4)
8.	Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Testoil-ISO 4113

40

VDT-WPP 001/4 MAN 8,3f 1 Edition 2.64

En

PE 6 A 70 B 412 RS 159 S 1058 RQ 200/975 A 128 D MAN-Nr. 50

supersedes

company engine.

15.2.62 MAN

Note: Perform basic adjustment before setting start of delivery.

D 1246 M 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6 12	2,0 - 2,6 6,9 - 7,5				
200	6	1,1 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 12 and 21 = 2,5-3°

B. Governor Settings

Checkin PRG che rev/min 1	cck Control rod travel	Full-load s Setting po rev/min 3	•	•	rev/min	Idle spee Setting p rev/min 7	•	Test spe	cifications 5 Control rod travel mm	rev/min	Control Control rod (3)
550	15,6-16,4	550	16		0 - 6,8		0		5,5-7,5 4,8-6,8 3 - 5 0 -2,5 0	700 800 900	15,6- 16 15,2-15,6 14,6-15,1

Torque-control travel on flyweight assembly dimension a =

0,4

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting f Idle spee	uel delivery 6
rev/min	cm ³ /~1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes		rev/min 6	rod travel cm ³ /1000 strokes:// mm
950	77,0 - 79,0	700	700 450	80,5-83,5 77,5-80,5	,		,

Test Specifications Fuel Injection Pumps (2) and Governors

VDT-WPP 001/4 KHD 12,6 e Edition 11.66

ie 45°

PE 8 A 75 B 320 RS 1022 RS 1099*

RQ 200/1150 A307D, A440D RQ 200/1150 A509D*

9.64 supersedes company:

RS 1099** RQ 250/1075 A151D(V5530D)**

KHD F 8 L 714 engine. (200 PS)

Cam sequence 1 - 8 - 4 - 5 - 7 - 3 - 6 - 2

(170 PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

Festoil-ISO 4113

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strukes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	3,8 - 4,2	0,3			
1000	12 15	6,7 - 7,6 9,4 - 10,6				
200	9	2,1 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200/1150 *

Checkin PRG che rev/min 1	Control rod travel	Full-load s Setting po rev/min 3	•	_	rev/min	idle spec Setting p rev/min 7	Control rod travel	Test spe	cifications 5 Control rod travel mm		Control (3) Control rod (travel mm 12
1050	14,6-15,4	1050	15,0		14,8-15,0 11,4-15,0 6,0-13,0 0 - 9,6 0	420	0	100 200 250 320	6,0-8,0 3,4-5,6 1,2-3,6 0	300 500 700 900	15,8-16,7 15,6-16,0 15,3-15,6 15,0-15,2

Torque-control travel on flyweight assembly dimension a =

0,3

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	3	Fuel delive	ery characteristics	<u>3</u> b	Starting f	. •
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm³/-1000 strokes 5		rev/min	Control red travel cm ³ /1000 strokes:/ mm
1130	91,0 - 93,0	600		600 1000	94,0 - 97,0 92,0 - 95,0			
								./.

B. G	overnor S	etting	gs						Kŀ	ID 12,6 e		-2-	
PRG che	g of slider ck Control rod travel mm 2	Full-load Setting p rev/min 3	•	-	rev/min	4)	Idle spec Setting p rev/min 7	_		cifications Control rod travel mm	Torque o	Control rod	3

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed			
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes / mm 7		
					P			
1130	75,5 - 77,5		1000 600	, -				

Checking values in brackets

B. Governor Settings

250/1075**

Checkin PRG che	g of slider	Full-load s Setting po	•	•		Idle spee	_		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm 2	rev/min	Control rod travel mm 4	Control rod travel mm 5	rev/min	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm	rev/min 11	travel
1000	13,8-14,6	1000	14,2	1075 1120 1140 1200 1240	14,0-14,2 7,5-12,5 4,5-10,5 0 - 5	440	0	150 200 250 300 340	7,3-8,1 5,5-8,1 3,0-5,6 0 - 2	700 800 900	15,0-15,4 14,6-15,1 14,3-14,7

Torque-control travel on flyweight assembly dimension a =

0,55 _{mm}

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics	Starting f	uel delivery d Control
rev/min	cm ³ /-1000 strokes 2	rev/min	rev/min 4	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
RS 1099** 1050	73,0 - 75,0	600	600 800	76,5 - 79,5 74,5 - 77,5		

Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/4 HAN 2,8 p Edition 10.64

En

PE 4 A 60 B 310 LS 166 S1064 RQV 250 - 900 A 102 250 - 950 A 102 supersedes

15.2.62

company: engine:

Hanomag D 28 L

restoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.1 + 0.1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6 18	0,6 - 1,2 8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 250-900 A 102

deflection	rev/min Control rod travel	travei	(e)	Intermediate Degree of deffection of control lever 4	rated spe rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control re travel mm 9		Sliding s rev/min 10	mm
60±1,5	900 920 960 1000 1060	15 -18 12 -15,4 5,2-10,6 0 - 6,2	5				10±1,5	100 250 350 500 640	7,6- 5- 3,4-4 1,6-2	7		
							30					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	limitation intermediate speed	high idle s	(ea)	idle switchin	ng point	travel	Control (5) Control rod travel
rev/min	cm³/1000 strokes	rev/min 3	rev/min 4	cm ³ /1 00 0 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	9 9
900	40,0 - 42,0	905 - 920						
			·					./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung. C by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany. Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed	1	Sliding sl	eeve travel
deflection of control	rev/min Control rod travel mm	mm	1a) 2a)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 11
65 ±1,5	950 960 1000 1060 1120	15 - 17 14 - 16 8 - 12 0 - 6	,5	7			10±1,5	100 200	7,2- 8 5,7-7,5 3,4-4,6 1,1-2,3		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil terr		Rotational-speed 2b limitation intermediate speed	character high idle s	ristics	Starting Idle switchir	fuel delivery 6	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	?	В	9

Checking values in brackets

* 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm

En

VDT-WPP 001/4 Edition 27.7.70

En

PE 4 A 90 C 412 RS 2248

EP/RSV 250-1100 A4 B1023DL (V10586DL)

supersedes

company engine

Henschel 542 - 08 HAN

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,5 + 0,1

mm (from BDC)

	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	9	5,8 - 6,3	0,4	2	3	6
1000 200	6 15	2,5 - 3,4 13,5 -14,8 3,2 - 4,1			·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control	rev/min	Control rod travel mm 3	Intermediate Degree of deflection of control lever 4	rated spe rev/min 5	ed Control rod travel mm 6	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm 9	3 Tor rev/min 10	que control Control rod travel mm 11
ca.72	1100 1150 1180	16,0 11,0 6,6	withou spring		iliary	ca.29	250 100 250	6,0 19 - 21 5,7-6,3	l	0 0,9-1,1
5	1170 1220 1320	6,0-10,0 2,4- 4,6 0 - 1	with a spring		ary		400 560	1,8-3,9 0 - 1	350	1,4-1,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting idle	fuel delivery	(5a) Idle stop		
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min cm³/1000 strokes		rev/min	rev/min cm³/1000 strokes 6 7		Control rod travel mm 9	
1100	65,5-67,5		700 500	74,0-77,0 71,5-74,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1.	Governor-spring adjustment	corresponds to	(1)
2.	Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3.	Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4.	Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5.	Adjustment of breakaway	corresponds to	(6)
6.	Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7.	Idle adjustment	corresponds to	(4)

Please consult test instructions as regards information given in parentheses.

Testoil-ISO 4113

and Governors

. .

WPP 001/4

En

PES 6 A 85B 420 LS 402/11 S 445 EP/RSV 300...1000 A2A 76 d
A 133 d

supersedes company:

engine:

Case

S 445 S 2054

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 -14,8	1			
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control	rated speed rev/min 2	Control rod travel mm 3	deflection travel of control		Degree of deflection of control	rated spe rev/min 8	ed Control rod travel mm 9	3 Tor rev/min 10	que control Control rod travel mm 11	
ca.42°	1020 1060 1090	11,6 8,8 6	without auxiliary spring			ca.22°	300 100 300	5,5 19 - 21 5,2-5,8	1000 900 700	0 0,1-0,4 0,2-0,5
5	1060 1100 1160 1240	8,2-9,2 4,6-6,2 1 -2,8	with auxiliary spring				380 500	2,3-3 0 -1	500	0,2-0,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ead stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	5a Idie stop	
				rev/min 6			Control rod travel mm 9	
1000	73,0-75,0	1000-1015	900 700 1085	76,0-79,0 76,0-79,0 9,0-19,0	100	7,9-8,6		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.12.59

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1	. Governor-spring adjustment	corresponds to	(1)
2	Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3	Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4	. Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5	. Adjustment of breakaway	corresponds to	(6)
6	. Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7	. Idle adjustment	corresponds to	(4)
8	. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

WPP 001/4

En

PES 4 A 8 OB 420 LS 401/11

EP/RSV 300...850A 5 A 54 d

supersedes

Case

company engine

1730/1700

See overleaf for special governor setting

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.15 + 0.1

mm (from BDC

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	4 Lowe Degree of deflection of control lever 7	rated spe rev/min 8	control rod travel mm	3 Tor rev/min 10	que control Control rod travel mm
ca.43	870 950 990	16 9,4 6	witho sprin		ciliary	ca.22	300 100 300	6,5 19 - 21 6,2-6,8	850 700 600 400	0 0,2-0,3 0,6-0,8 0,7-0,9
6	950 1000 1050 1150	8,6-10,5 4 - 6,5 0,8- 3,6	with sprin	auxili 9	iary			4,2-5,4 2 0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.	Rotational-speed limitat. 3a Fuel delivery characteristics			Starting fuel delivery		5a Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min rev/min 3 4		cm ³ /1000 strokes 5	rev/min			Control rod travel mm 9	
850	69,5-71,5	850 - 865	600 500 935	74,5-77,5 73,0-77,0 10,5-20,0	100	7,5-8,6			

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.5.60

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1.	Governor-spring adjustment	corresponds to	(1)
2.	Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3.	Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4.	Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5.	Adjustment of breakaway	corresponds to	(6)
6.	Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7.	Idle adjustment	corresponds to	(4)
8.	Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

WPP 001/4

supersedes

RQV 250 - 1000 A 345 PES 6 A 85 B 410 RS 452 ROV 250 - 1000 A 346 PES 6 A 85 B 410 RS 453

company:

engine

12 BD 11

SLM

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 .	Spring pre-tensioning (torque-control valve) mm 6
	9	5,5 - 5,9				
1000	12 21	9,0 - 9,8 9,1 -11,3				
200	9	4,4 - 4,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed	4	Stiding sleeve travel	
deflection	rev/min Control	Control rod (a) travel	Degree of deflection		Control rod travei	Degree of deflection		Control rod travel		1
of control lever	rod travel mm	mm rev/min 2a	of contres lever	rev/min	mm 💽	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
65±1,5	1000 1040 1080 1120 1190	14,8- 17 10 -13,4 5 - 9,8 0,2- 6	-	-	-		200 250 300 400 500 650	6,2-8 4-6,6 3-3,8 2,2-3,7 1,1-2,5 0		

Torque control travel a =

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rad stop Test oil temp. 40°C (104°F) 2		Rotational-speed 20 limitation intermediate speed			Starting Idle switching	<u> </u>	Torque- travel	Control rod	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
1000	68,5-74,5* (RW 10,0mm)	1000*	230	21,5-23,5* RW 7,0 mm					
				b.w.					

Checking values in brackets

* 1 mm less control rod travel then col. 2

(3.0.00

Following basic adjustment of pump and testing of governor:

- 1. At n = 1000 move control lever to max. position; control-rod travel must be 14.7 17 mm. The control lever is then to be moved until a control-rod travel of 10 mm is obtained. Set stop screw and control-rod stop in this lever position.
- 2. Reduce engine speed to n = 230, set control lever to 7.0 mm control-rod travel (limit with shutoff stop screw as a temporary measure) and adjust delivery to $21.5-23.5 \text{ cm}^3/1000 \text{ strokes}$.
- 3. Measure delivery at n = 1000 and 10.0 mm control-rod travel: it must be 68.5 74.5 cm³/1000.
- 4. Test automatic control-rod stop (refer also to BMP 211/15)

(Pump S 452 with governor A 345)

Testoil-ISO 4113

Testoil-ISO 4113

WPP 001/4

Εn

PES 6 A 85 B 420 LS 402/11

EP/RSV300...1000 A2A 76 d

supersedes company.

S 445 S 2054 A 133 d

engine.

Case W 12

See overleaf for special governor setting.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 -14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	deflection travel		Degree of deflection of control lever	egree of Control rod travel		3 Tor	que controi Controi rod travei mm 11	
ca.42	1020 1060 1090	11,6 8,8 6	withou spring		iliary	ca.22°	100 300	5,5 19 - 21 5,2-5,8	1030 900 700	0 0,1-0,4 0,2-0,5
5	1060 1100 1160	8,2-9,2 4,6-6,2 1 -2,8	with a spring		ary 		380 500	2,3-3,7 0	500	0,2-0,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	oad stop	6 Rotational- speed limitat.		el dalivery aracteristics	Starting Idle	fuel delivery	(5a) Idle	stop
Test oil ten rev/min 1	temp. 40°C (104°F) cm³/1000 strokes rev/min rev/min cm³/1000 strokes 2 3 4 5		rev/min 6	cm³/1000 strokes	rev/min 8	Control rod travel nam 9		
1000	73,0-75,0	1000-1015	900 700 1085	76,0-79,0 76,0-79,0 9,0-19,0	100	7,9-8,6		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.12.59

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
 Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. 	roughly corresponds to	(3)
 Final adjustment of full-load delivery by screwing back full-load stop screw 	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

En

PES 4 A 85 B 420 LS 401/11 S 445 EP/RSV 300...850 A5A 90 d A 136 d supersedes

company: engine:

Case 830/1700

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 -14,8				
200	6	1,3 - 2,2	٠			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	ieeve travei
1	rev/min Control	Control rod (1	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		①
of control		mm rev/min	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.43°	860	16				ca.22°	300	6,5	850	0
}	920	12	without	auxi	iary		100	1 19 - 21	700	0,2-0,5
	990	6	spring		1		300	6,2-6,8	600	0,4-0,7
	960	7,4 - 9,	6		1		400	4,2-5,2	400	0,4-0,7
	1000	4,2 - 6,		xilia	ŗу		500	0 - 1		
	1040	0,8 - 3,	5 spring		1	(3a)			ŀ	
	1120	0.3 - 1			<u> </u>		<u> </u>			l

Torque controi travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics (5a)	Starting Idle switchir	<u> </u>	Torque- travei	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
850	73,5-75,5	850-865	600 450 935	76,5-79,5 75,0-79,0 11,5-20,5	100	8,4-9,5		

Chucking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

9.11.64

B16

Testoil-ISO 4113

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
 Pre-adjustment of full-load delivery and noting down of control-rod travel 	roughly corresponds to	(2)
 Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. 	roughly corresponds to	(3)
 Final adjustment of full-load delivery by screwing back full-load stop screw 	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
 Testing of torque control and fuel- delivery characteristics 	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4

En

PES 6 A 85 B 412 RS 461

EP/RS 200/600-1100 AO A379d MAN-Nr.

supersedes company:

MAN

See overleaf adjustment data for stop mechanism

engine:

D 2146 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.5 + 0.1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (to:que-control valve) mm 6
	6 ·	1,3 - 2,1				
1000	9 15	4,9 - 5,5 12,3 -13,1	0,4			
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

deflection of control	rev/min Control rod travel	Oontrol rod travel mm rev/min (28)	of control	rated sp	Control rod travel	Lower rated Degree of deflection of control lever	speed rev/min	Control rod travel	Sliding s	leeve travel
1	2	3	4	5	6	7	8	9	10	11
ca.31	600 600 650 700 750 850	12,4 12 - 12,8 4,5- 5,9 2,4- 4,2 0 - 2,5 0 - 1	ca.68	1100 1100 1150 1200 1250 1350	12-12,6 6,5-8,3 3,5-5 1,4-3,1	ca.18	200 100 200 300 400 600	0,5 20 - 21 8,2-8,8 5,5-7 1,5-4,8 0 - 1	1080 1000 800 600 450	0,2 0,5 0,7

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b limitation intermediate speed		Fuel delivery characteristics (5a) high idle speed (5b)		fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min	travel mm
1	2	3	4	5	6	7	8	9
1080	97,5-99,5	1110-1130	900 700 500	98,0-101,0 94,5- 97,5 99,5-103,5	100	mind.20 mmRW		

Checking values in brackets

* 1 mm less control rod travel then col. 2

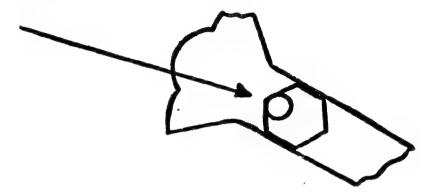
20.10.61

BOSCH

Geschäftsbereich KM. Kundendienst. Kfz-Ausrüstung.
C by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany. Imprime en Republique Féderale d'Aliemagne par Robert Bosch GmbH.

Adjustment data for stop mechanism

Before setting the governor, the driver lever is fixed such that if at all possible contact is not made with the stop pin on the stop lever in the stop position of the control lever. The stop pin on the stop lever is moved to the position shown on the drawing.



- 2. Governor setting in accordance with KDA-EPR 30 B
- 3. Setting of shutoff device

Do not actuate pump. Hold control lever in idle position, loosen driver lever, position against stop pin and tighten. The force required to override the idle stop must be 7 ± 0.5 kg perpendicular to the control lever (100 mm lg). The force can be increased by turning the eccentric slightly in a clockwise direction and reduced by turning it in a counter-clockwise direction. The force is measured after first moving the control lever back several times. If the force is correct, the position of the driver lever with respect to the control lever is to be corrected if necessary such that the driver lever makes contact with the stop pin when the control lever is in the right idle position. The shutoff stop screw of the control lever is to be positioned such that the control rod moves to approx. 0.5 mm before stop. The control-lever deflection between idle and stop should be roughly $7 - 10^{\circ}$.

Testoil-ISO 4113

WPP 001/4

En

PES 6 A 80 B 420 LS 402/11

EP/RSV 300-900 A2A 75 d

supersedes

company: Case

engine:

W - 10

See overleaf for special governor setting

Test with case overflow valve, Inlet pressure 1,0 bar.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 2.2 ± 0.05

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,6 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control leyer 4	rated spe rev/min 5	Control rod travel mm	4 Lower Degree of deflection of control lever	rated spe rev/min 8	Control rod travel mm	3 Tor rev/min 10	control Control rod travel mm
ca.38	915 940 980	10 8 4,5				ca.21	300 100	5 19 21	880 800 600	0 0,2-0,4 0,7-0,9
5	915 930 980	9,6-10,4 8,4- 9,1 4,2- 5,4					220 300 380 500	8,7- 21 5,5 2 - 3,5 0 - 1	450	0,75- 1,05
	1100	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	speed fi			el delivery racteristics	Starting Idle	fuel delivery	5a idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min cm³/1000 strokes		rev/min 8	Control rod travel mm 9
900	69,5-71,5	910	700 500 985	77,0-80,0 75,0-79,0 8,0-18,0	100	7,9-8,4		

Checking values in brackets

* 1 mm less control rod travel than col. 2

14.2.63

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1.	Governor-spring adjustment	corresponds to	(1)
2.	Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
3.	Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2.	roughly corresponds to	(3)
4.	Final adjustment of full-load delivery by screwing back full-load stop screw	roughly corresponds to	(2)
5.	Adjustment of breakaway	corresponds to	(6)
6.	Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7.	Idle adjustment	corresponds to	(4)
8.	Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

supersedes

Edisa

company engine

PE 4 A 75 B 320/3 RS 1023 EP/MV 80 AA 95

See overleaf for special governor setting

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm 1/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
1000	9	4,7 - 5,1	0,4			
	6 15	1,9 - 2,6 10,4 -11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in [______

B. Governor Settings

			Control limitation breakay	n	Control	rod travel test	Auxiliary spring auxiliary cames		Torque control	
Torque control travel	Vacuum pressure drop			Control rod travel		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col	s	mmw c.	mm	mmw.c.	mm	mmwc	wiu	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
425 mm kersel and the control rod trainer and trainer and the control and the	500-480 of push vide (approximate) (c) (approximate) (c) (c) (c) (c) (d) (d) (d) (d) (d) (d) (d) (d) (d) (d	valve k. 6. ¹¹⁾ ov m∋an	4 mm s of shim	control-r	- od tra	- vel)	400 430	9,6-10,4 6,7-10,4 5,3- 6,5 3,2- 5,2 0 - 1,7	ii	

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load s Test oil ter	ull-load stop screw est oil temp. 40°C (104°F)			ery character	stics	idle (stop idle (imb		Control road travel from full-load to fidle
rev/min 1	Vacuum mm wat, col	cm ³ /1000 strokes 3	rev/min	Vacuum mm wat col 5	cm ³ /1.000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8
1000	0	51 - 53						

Checking values in brackets

8.12.81

Full-load setting, Section C) prior to governor setting, Section B)

Governor setting with adjustment of push valve:

- The vacuum connection is made in the normal manner at the vacuum chamber of the governor housing. The second connection remains open. Attach control-rodtravel measuring device.
- 2. Set vacuum to adjust push valve.
- 3. Alternately open and close additional connection by applying pressure with fingers and in doing so observe control-rod travel. The control rod moves as a result of the difference in pressure ahead of and downstream of the push valve.
- 4. Unscrew auxiliary push valve in governor housing by turning it in a counterclockwise direction towards STOP until control rod (when effecting closing and opening as described under 3.) no longer moves.
- 5. Test speed regulation of governor in accordance with Columns 8 and 9.

40

WPP 001/4

En

PES 4 A 85 B 410 RS 503

RQ 250/1200 A 387 d

supersedes

company: Sagerer-Arbon

engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.15 + 0.

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mn; 6
1000	9	4,1 -, 4,6				
	6 15	0,1 - 0,8 11,4 -12,6				
200	9	3,1 - 4,0			,	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load s Setting po rev/min 3	•	-	cifications (4)	Idle spec Setting p rev/min 7			cifications 5 Control rod travel mm	Torque o	Control rod (3)
550	15,6-16,4	550	16	1200 1220 1240 1280 1340	14 -14,2 10 -14 0 -8,4		0	100 200 300 390	5,4-7,4 3,9-6,1 1 -3,6 0	700 800 900 1000	15,8-16 15,4-15,8 15 -15,4 14,6-15

Torque-control travel on flyweight assembly dimension a =

0,55_{mm}

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontro! lever np. 40°C (104°F)	Control rod stop (3a) Fuel delivery characteristics		3 b)	Starting for			
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm³/-1000 strokes 5		rev/min	Cantral rid travel cm ³ /1000 strokes;/ mm
1180	65,5 - 67,5	500		800	57,5-60,5		100	mind.13mm RW
				500	51,5-54,5		250	Idle speed 6 mm RW

Checking values in brackets

26.7.63

BOSCH

Testoil-ISO 4113

VDT-WPP 001/4

Edition 5.10.66 En supersedes

8.10.63

EP/RSV 300-850 A5 B 185 D company: Case

engine.

730-170

731

Test with case overflow valve See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 4 A 80 C 420 LS 2054

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm	3 Tor	que control Control rod travel mm 11
ca.44	865 890 920	10,0 7,6 5,2	witho sprin		iliary	ca.25	300 100 300	5,8 19 - 21 5,5-6,1	830 650 500	0 0,4-0,6 0,7-0,9
5	880 950 1050	8,3-9,1 2,8-4,0 0 - 1	with a sprin	auxili g	ary		400 550	1,9-3,6 0 - 1	400	0,7-0,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	5a) idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min crm³/1000 strokes		rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
830	71,0-75,0	850-865	650 500 935	75,0-78,0 73,5-76,0 12,5-24,5	100	7,5-8,6		

Checking values in brackets

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

1. Governor-spring adjustment	corresponds to	(1)
Pre-adjustment of full-load delivery and noting down of control-rod travel	roughly corresponds to	(2)
 Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. 	roughly corresponds to	(3)
 Final adjustment of full-load delivery by screwing back full-load stop screw 	roughly corresponds to	(2)
5. Adjustment of breakaway	corresponds to	(6)
6. Testing of torque control and fuel- delivery characteristics	roughly corresponds to	(3) (3a)
7. Idle adjustment	corresponds to	(4)
8. Testing high idle Test starting fuel delivery and adjust with control-rod stop	corresponds to	(6a)

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 1.74

PES 6 A 70 C 410 RS 1227

EP/RSV 250-1150 A 1 B 164 L

supersedes

company engine:

Same Casani 1006/V

Special instructions on reverse side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

3,5 + 0,05

mm (from BDC)

bei RW 21 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,5 - 3,9				
	6 12	1,7 - 2,7 4,8 - 5,6				
200	9	1,6 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Internediate rated speed Degree of deflection of control lever rev/min 4 5 6			4 Lower Degree of deflection of control lever 7	rated spe rev/min 8	Control rod travel mm	3 Tor	que control Control rod travel mm 11
ca.64	1150 1200 1240	16,0 10,8 5,6	•	without auxiliary spring			250 100 250	6,0 19 - 21 5,7-6,3	1130 400 300	0 0 1,2-1,8
5	1220 1250 1300	6,0-10,0 2,6- 6,4 0 - 2,5	with auxiliary spring				300 400 450	3,9-5,0 0 -1,8 0 -1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel injection Pump with Fitted Governor

2 Full-loa Test oil temp rev/min 1	d stop . 40°C (104°F) cm³/1000 strokes 2	Rotational- speed limitat. Note: changed to rev/min 3	ed limitat. characteristics to rev/min cm³/1000 strokes		Starting fuel delivery idle rev/min cm³/1000 strokes 7			Control rod travel mm
1130	54,0-56,0*	1160-1170	-	-	-	-	_	-
								./.

Checking values in brackets

Setting start of delivery and angular cam spacing:

- 1. Set start of delivery and angular cam spacing at 21 mm control-rod travel.
- Check angular cam spacing at 12 mm control-rod travel (full-load position).
 Permissible deviation max 1° cam rotation angle.
 Difference in start of delivery between 21 and 12 mm control-rod travel is not measured.

Testoil-ISO 4113

VDT-WPP 001/4 MAN 5,9 d Edition 2,64

PE 6 A 65 B 412 RS 320

EP/RSV 200 - 1000 A 1/21 MAN-Nr.204 - 209 102,166 supersedes company.

3.8.61 MAN

EP/RSV 250 - 900 A 1/21

engine:

D 0026 M

S 1059 S 1081 MAN-Nr. 105 EP/RSV 200 - 600 A 7/11 MAN-Nr. 207 A 102, 166

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A 102, 166

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,2	0,3			
200	6 12 6	1,1 - 1,8 5,8 - 6,5 0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200 - 1000 A 1/21, 102, 166

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	deflection travel of control			rev/min	ced Control rod travel mm 9	3 Tor rev/min 10	que controi Control rod travel mm
ca.52	1000 1050 1100	16 9,5 2	withou spring		iliary	ca.21		6 19 - 21 5,7 -6,3	980 400	0
5	1050 1100 1200	8 - 11 2 - 4 0 - 1		with auxiliary spring			300 400	1,5 -4 0 -1	250	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

1	Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes		6 Rotational- speed limital. Note: changed to rev/min	racteristics	Idle		rev/min	estop Control rod travel mm
Nr.204 Nr.205 Nr.206 Nr.209	880 730 980 880	51,0-53,0 50,5-52,5 47,0-49,0 52,0-54,5	910 - 920 760 - 770 1010 -1030 910 - 920		100	mind.9,9		./.

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

1 Uppe	r rated speed		Interme	diate rated	speed	(4)	- Lower	rated speed	(3) To	rque control
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
ca.45	900	16	1		• • • •	.20	250	6	880	0
	930 960	11,8 7	with	out au: na	ומוווא	Jy	100	19 - 21	400	0
		0 2 14 0	_				250 300	5,7-6,3 3,5- 5	290	1,2-1,8
	940 960	8,2-11,8 4 - 9	with	auxil	iary		400	0 -1,3		
2	1000	1,4-3,6	spri		•		450	0 - 1		
	1100	0 - 1	<u> </u>							

C. Settings for Fuel Injection Pump with Fitted Governor

il-load stop mp. 40°C (104°F)	Rotational- speed limitat.			Starting f	tuel Celivery 5	Idle stop	
cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
					a		
56,5-58,5	910 - 920						
	mp. 40°C (104°F)	mp. 40°C (104°F) cm³/1000 strokes 2 speed limitat. Note: changed to) rev/min 3	mp. 40°C (104°F) cm³/1000 strokes 2 speed limitat. Note: changed to) rev/min rev/min 3	mp. 40°C (104°F) cm³/1000 strokes 2 speed limitat. Note: changed to) rev/min rev/min cm³/1000 strokes 5	mp. 40°C (104°F) cm³/1000 strokes rev/min rev/min rev/min rev/min fev/min fev	mp. 40°C (104°F) cm³/1000 strokes 2 speed limitat. Note: changed to) rev/min rev/min cm³/1000 strokes 7 ldle rev/min cm³/1000 strokes 7	mp. 40°C (104°F) cm³/1000 strokes 2 Note: changed to) rev/min 3 rev/min 4 cm³/1000 strokes rev/min 6 rev/min 7

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

200 - 600 A 7 /11

	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	intermed	iate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	1(3)	rque control Control rod travel mm
ca.36	600 625 650 630 650 680 750	16 11,2 5,2 9 - 11,3 3,7- 9,2 2 - 3,4 0 - 1	witho sprin with sprin	g auxili		ca.16 y	100 200 250 300 350 400	6 19 - 21 5,7-6,3 4 - 5 1,5-3,7 0 - 2 0 - 1	580 400 250	0 · 0 1,2-1,8

C. Settings for Fuel Injection Pump with Fitted Governor

Test oil te		Rotational- speed limitat. Note: changed to) rev/min	el delivery aracteristics cm ³ /1000 strokes 5	Starting f Idle rev/min 6	uel delivery 5 cm³/1000 strokes	rev/min	e stop Control rod travel mm 9
Nr.20 580 1250 Nr.20	49,0-51,5 47,0-49,0	610 - 620 -	•				·

Checking values in brackets En

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 MB 1,8 u Edition 12.68

Er

PES 4 A 50 B 410 RS 50 (C) RS 1010 C 320 RS 1143 EP/RSV 300-1650 A 2 A 217 DL B 230 DL EP/RSV 350-1650 A 2 A 217 DL supersedes company:

3.66

220 DI B 441 DI P 499

engine:

Daimler-Benz OM 636

C 410 RS 1025

B 230 DL, B 441 DL, B 488 DR B 522 DL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Festoil-ISO 4113

	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12	2,2 - 2,7	0,2			
1	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

300-1650 A2^A 217 DL; 230 DL

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe		(3) Tor	que controi
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	deflection of control lever rev/min mm		Degree of deflection of control lever			rev/min	Control rod travel mm
1	2	3	4.	5	6	7	8	9	10	11
ca.61	1650 1700	16,0 11,0	withou	t auvi	liary	ca.17	300	6,0	1630	0 0,2-0,4
	1750	5,0	spring	c uuxi	i iui y		200 300	19 - 21 5,7-6,3	1100	0,9-1,1 1,1-1,3
(5)	1720 1750	7,0-9,8	with a	uxilia	iry		400 500	4,1-5,1 1,5-3,7	450	1,1-1,3
9	1800	1,7-3,7	spring	spring			670	0 -1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	oad stop				Starting Idle	fuel delivery	(5a) Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min ·	rev/min cm³/1000 strokes		rev/min cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9	
1650	27,2 - 28,2		900 500	29,2-30,2 28,2-30,2	100	16,2-16,8	350	6,0 441DL 448DR)	
When c	hecking extend	by±0,5 cm³	(Sect	C, col. 2)!	See 1	everse side			

Secking values in brackets

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	liate rated	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To rev/min 10	rque control Control rod travel mm
ca.63	1650 1700 1760 1760 1820 1920	16,0 11,8 5,8 4.6-8,5 1,5-3,7 0,3-1,0	spri	auxil	ca.19 'Y -	350 150 350 500 700	6,0 19 - 21 5,7-6,3 2,5-4,2 0 -1,0		0 0,3 - 0,5 0,9 - 1,1 1,1 - 1,3

At n = 1680 the control-rod travel must be 0.5-1.0 mm smaller than with full load C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop		speed limitar. Characteristics			Starting fuel delivery 5 4a idle stop			
Test oil te	emp. 40°C (104°F) cm³/1000 strokes	Note: changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
<u> </u>	2	3	4	5	6	7	В	9	
		İ			1				
								•	
				ļ					

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

Testoil-ISO 4113

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
,			

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

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CI

Testoil-ISO 4113

VDT-WPP 001/4 MB 3,8 d Edition 6.70

En

PES 4 A 80 C 410 RS 2094

EP/RSV 300-900A7B 528 L (1) EP/RSV 575-1100A7B552 L (2)

company:

supersedes

Daimler-Benz

EP/RSV 575-1000A7B552 L (3)

engine.

OM 314

(1)-(Assemblies of equipment-50PS)

(2)-(Combine harvester-69PS)

(3)-(Assemblies of equipment-64PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

300 - 900

(1)

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rav/min 5	Control rod travel mm	4 Lowe Degree of deflection of control lever 7	rev/min	Control rod travel mm		que control Control rod travel mm		
ca.49,5	900 920 930	16,0 9,6 4,8	without spring	auxi	liary	Note on governor setting: *Release by 2 detent positions from max. tension to obtain						
⑤	900 920 950	7,5-8,0 2,4-3,7 0 - 1	with au spring	xilia	ry	<pre>speed droop (pre-adjustment) **Position auxiliary idle spring appropriately, so as to obtain required control-rod travel of 2.5 mm at n = 920-930 min⁻¹.</pre>						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	speed limit			el delivery aracteristics	Starting Idle	fuel delivery	5a Idle stop		
Test oil temp rev/min 1	est oil temp. 40°C (104°F) ev/min cm³/1000 strokes rev/min 2 Note: changed to rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
880	49,0-51,0				100	13,2-13,8			
				_				./.	

Checking values in brackets

B. Governor Settings

575-1100

(2)

	r rated speed Control rod travel mm		intermed	liate rated	speed	Control- lever deflection in degrees 7	- Lower rev/min 8	rated speed Control rod travel mm	rque control Control rod travel mm
ca.56,5	1100 1110 1120 1100 1130 1180	12,0 7,0 2,4 8,2-9,4 3,0-4,4 0 - 1	4 cra	g on max ns auxili	·-	y ca.25	575 200 575 600 660	5,0 19 - 21 4,7-5,3 2,8-4,0 0 - 1	

C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop		speed limitat. Characteristics			uet delivery 5	4a Idle stop	
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7		travel mm 9
		1145: RW3 with idle-speed	uxili	ary spring				
1080	53,0 - 55,0		500	43,0-46,0	100	13,2-13,8	575	5,0

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

575-1000 (3)

18 4 4	rated speed Control rod travel mm		Intermed	liate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	rque control Control rod travel mm
ca. 51,5		12,0 7,0 2,4 8,2-9,4 3,0-4,4 0 - 1	sprin Tensi 4 cra	ng ion ma: uns auxil	x	y ca.25	575 200 575 600 660	5,0 19 - 21 4,7-5,3 2,8-4,0 0 - 1	

C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop imp. 40°C (104°F) cm ³ /1000 strokes 2			el delivery aracteristics cm ² /1000 strokes 5	Starting for Idle rev/min 6	uel delivery 5 cm ³ /1000 strokes 7	rev/min	Control rod travel mm
		1045: RW3 with idle-speed	auxil	iary spring				
980	52,0 - 54,0		500	43,0 - 46,0	100	13,2-13,8	575	5,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

C10-

Test Specifications Fuel Injection Pumps 1 and Governors

VDT-WPP/001/4 DAI 5,7 e

Edition 2.66

PES 6 A 80 C 410 RS 2085 y RQV 300 - 1475 AA 532 DL, 533DL

56 DL, 562DL

5.64

RS 2085 z (See reverse side)

and DAI5,7f(5.64) company:

supersedes

Daimler-Benz OM 352 (110 PS)

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop * OM 352 (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	2,15 + 0,1 mm (from BDC)								
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)				
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6				
1000	9	4,3 - 4,8								
	. 6 15	1,8 - 2,6 10,4 -10,8								
200	9	2,4 - 3,4								
i										

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

deflection Co	ontrol od travel	(LEAG)	(9)	Intermediate Degree of deflection of control lever	rated speries rev/min	Control rod travel mm 4	Lower rated Degree of deflection of control lever	speed rev/min 8	Control rod travel	Sliding s rev/min 10	leeve travel i mm 11
111111111111111111111111111111111111111	1475 1500 1600 1700 1800 1850	14,6- 17 8,4- 13 1,6- 8	3,9 7,8 3,5 3,6 3,0				ca.10	100 250 400 500 600 770	6,7-8,0 5,4-7,0 3,3-5,0 2,5-3,7 1,3-2,7	1000 900	0 0,4-0,6 0,6-0,8 0,9-1,1 1,1-1,3

Torque control travel a = 1.2

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s	rery characteristics 58 peed 50	Starting Idle switching		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
.RS 20	85 <u>y</u>							
1450	45,5-47,5	1475	1000 800 500	45,5-48,5 45,0-48,0 41,0-44,5	100	14,2-14,8	556 .562	DL, DL
						1	1300	

Checking values in brackets

D. 401	V 111 V 1	9914111;	3								
Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed	: •	Sliding si	eeve travel
Degree of deflection	Control	Control rod travel	(ta)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
of control lever	rodtravel mm	rev/min	(2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1,	2	3		4	5	6	7	8	9	10	11
							(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem		Rotational speed 2b limitation intermediate speed	Fuel deliv high idle s	peed 5b	Starting Idle switchin		Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a)	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm3/1000 strokes 7	rev/min 8	travel mm 9
1450	41,0-43,0	1475	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	14,2-14,8	→ 556 130	

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated s	peed			Intermediate	•		Lower rated	speed		Sliding s	eeve travel
	Control	Control rod travel	(la)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
of control lever	rod travel	mm rev/min	(2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3)	.4	5	6	7	8	9	10	11
							За				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem		Rotational-speed (2b) timitation intermediate speed (4a)	Fuel deliv	rery characteristics 5a speed 5b	Starting Idle switchir	fuel delivery .6	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
					ļ			
				1				
	!	1		1	Į.			

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 DAI 1,8 n Edition 3.66

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*PES 4 A 50 C 410 RS 1127,Z EP/MZ 60 A 150 DL supersedes
PES 4 A 50 C 410 RS 1010,Z EP/MZ 60 A 132 D, 143 DL company
PES 4 A 50 B 410 RS 144,Z EP/MZ 60 A 94 D, 99 D
Set breakaway at n 1775 and WG 575 by means of shims: at WG 590
Governor must have regulated 0.2-0.6 mm control-rod travel.

2.64
DAI 1,8nl 9.65
DAI 1,8 p 2.64
Daimler-Benz
OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

See overleaf for governor and full-load values "Z"!

1,7+0,1

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm 1/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
1000	12	2,2 - 2,7	0,2			
200	9 18 9	0,8 - 1,4 4,5 - 5,2 0,6 - 1,1				
			G			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

without .. z

	Leakage Control-rod travel limitation breakaway*		n	Control	rod travel test	Auxiliary auxiliary		Torque control		
	Vacuum pressure drop	Time at least		Control rod travel		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col.	s	mmwc.	mm	mmwc	mm	mmwc	mm	mmw.c.	mm
1	2	3	4	5	6	7	8	9	10	11
0,6±0,1 500-480 10							575 675 825	12,9-13,1* 7,8-10,1 2,0- 5,2		13,6 13,3-13,6 13,0-13,3
control rod travel test (cols. 4-11) - rotational speed 500 rev/min. adjust breakaway (cols. 4-5) by means of shims* cam adjustment (8 8-9 - C 7-8) by means of shims**										

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp 40°C (104°	F)	Fuel deln	very character	stics	idle (stop idle (imb		Control road travel from full-load to lide
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8
1700	540	29,4-30,4	1000 500	225 205	27,9-29,9 27,2-29,2	0	.0	5,6 - 6,0
			250	ca.670	6,2-8,2	:		
			· di	spersion	max. 1,5			
					·			./.

Checking values in brackets

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrüstung € 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany. Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

-2-

B. Gove	rnor Se	ttint	38		with	"z"			DAI	1,8 n
	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary auxiliary		Torque control	
Torque control travel		Time at least		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col.	s	mmw.c.	mm	mmw.c.	mm	mmw.c.	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	17
0,6±0,1	500-480	10	-	•	-	-	575 675 825	12,6-12,8 6,5-8,7 0,8-3,8	200 375 500	12,3 12,0-12,3 11,7-12,0
= rotational sp adjust breakey	rel test (cols. 4- eed 500 rev/mii vay (cols. 4-5) nt (B 8-9 = 0.7-			·						

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load Test oil te	stop screw imp. 40°C (104° Vacuum		Fuel deli	very character		idle (stop idle (imb	alance) .Vacuum	Control road travel from full-load to idle mm
rev/min	mm wat. col.	cm ³ /1000 strokes	rev/min	mm wat. col.	cm ³ /1000 strokes	rev/min	mm wat. col.	cm ³ /1000 strokes
1	2	3	4	5	6	7	ĺ	8
1700	540	24,9-25,9		225 205 ca.640 ispersion	23,4-25,4 22,7-24,7 6,2- 8,2 max.1,5	U	0	4,3 - 4,7

Checking values in brackets

B. Governor Settings

	Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam.**		ontrol
Torque control travel				Control rod travel		Control rod travel		Control rod travel		Control rod travel
mm	mm water col.	s	mmw.c.	mm	mm w.c.	mm	mm w.c.	mm	mm w.c.	mm '
1	2	3	4	5	6	7	8	9	10	11
control rod trav	eitest (cois. 4-	11)			\					
= rotational sp adjust breakav	eed 500 rev/mir vay (cols. 4-5) t nt (8 8-9 - C 7-									

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load : Test oil te	ull-load stop screw lest oil temp. 40°C (104°F)			ery characteri	stics	idle (stop idle (imba		Control road travel from full-load to
rev/min	Vacuum mm wat. col. cm ³ /1000 strokes 2 3			Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col.	mm cm³/1000 strokes 8

C14

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

VDT-WPP 001/4 STE 6,0 o Edition 1.60

engine:

PE 6 A 80 C 412 RS 2182

RQ 250/1400 AA 322 DL (1) RQ 250/1500 AA 322 DL (2) supersedes 8.66

RQ 250/1400 AB 605 DL (3)

Steyr company: WD 609

Pay attention to note "without" or "with" disposable cap as regards full-load setting. Refer to Page 3 for setting of charge-air-pressure controller .. AB 605 DL.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1400 AA 322 DL

(1)

	Checking of slider Full-load speed regulation Fu			_	infications (4)	Idle speed regulation Setting point Test specifications 5				Torque control	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control red travel mm 5	rev/min	rev/min 7	Control red travel rrim 8	rev/min	Control rod travel	rev/min	travel
1300	14,4-15	1300	14,7	1400 1420 1450 1500 1580	14,4-14,7 11,0-14,7 6,0-12,0 0 - 7,6	510		100 200 250 300 350 410	6,2-8,1 4,6-6,8 3,6-5,8 2,0-4,4 0 -2,7	450 700	16,0-16,3 15,2-15,6 14,7-15,0

Torque-control travel on flyweight assembly dimension a =

 $_{mm} + 0.05$ 0,4

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	Full-load delivery on governor control lever [2]		Control rod stop		Fuel delive	ery characteristics	3 b	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3		rev/min	cm ³ /~1000 strokes		rev/min	rad travel cm ³ /1000 strekes:/ mm 7	
withou 1380	t 54,5-56,5		500		1000 500	49,5-52,5 45,5-48,5				
with 1380	49,0-52,0									
									./.	

B. Governor Settings

Checking of slider Full-load speed regulation PRG check TSetting point Test specific			Idle speed regulation Setting point Test				tion Test specifications (5)		Torque control		
rev/min	Control rod travel mm	rev/min	Control rod travel rmm	Control rad travel rnm 5	rev/min	rev/min 7	Control rod travel rmm 8	rev/min	travel mm	rev/min	Control rod travel mm 12
1450	14,4-15	1450	14,7		0 - 8	500	0	100 200 300 400	6,0-8,0 5,0-7,0 2,0-4,0 0	400 700 850	16,0-16,6 15,3-15,7 14,7-15,0

Torque-control travel on flyweight assembly dimension a =

0,4 + 0,05

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever on 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fi	Control
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes / mm
1480	62,5 - 64,5	500	1000	55,5 - 58,5		
1480	57,0 - 60,0		500	53,0 - 56,0	Pypolite on the many of	
						and the second section of the second

Checking values in brackets

B. Governor Settings

RQ 250/1400 AB 605 DL (3)

PRG che	g of slider ck Control rod travel mm 2	Full-load s Setting po rev/min 3			rev/min	Idle spee Setting p rev/min 7	Control red travel	Test spe	cifications 5 Control rod travel mm		Control rod (3) travel mm
550	15,7-16,3	550	16,0	1400 1430 1460 1500 1580	14,5-14,8 10,0-14,4 6,0-12,0 0 - 8 0			100 200 250 300 410	4,/-0,8	1050	15,8-16,0 15,3-15,6 14,8-15,0

Torque-control travel on flyweight assembly dimension a =

 $0,4_{mm}+0,05$

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ter	elivery on control lever np 40°C (104°F)	Control rod slop	Fuel deliv	ery characteristics	Starting f	Contra
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
						•
withou 1400 with	ut - 0,6 atü 73,5-75,5 - 0,6 atü 70,0-74,0	900-0,35 atü	900	77,5 - 80,5 55,0 - 58,0		0,35atü 0,1 atü

Setting of manifold-pressure compensator - governor .. AB 605 DL

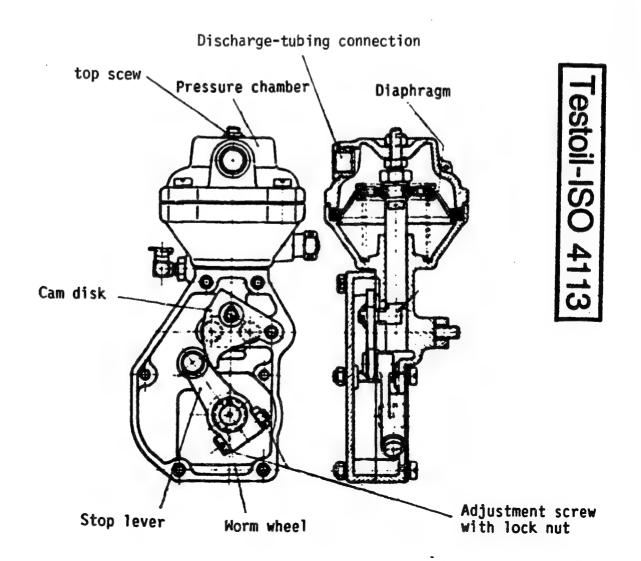
1. Connect up compressed air at discharge-tubing connection of diaphragm.

The charge-air pressure/gauge pressure can be set with compressed air, commercially available reducing valve and pressure gauge 0 - 3 atg.

- 2. Set full-load delivery at stop lever by turning adjustment screw (worm and worm wheel roller makes contact with cam disk).
 Always tighten lock nut after performing adjustment!
- 3. Set full-load stop screw such that it makes slight contact there must be no change in control-rod travel!
- 4. Test fuel-delivery characteristics by changing charge-air pressure.

Whenever charge-air pressure is changed, move control lever back and re-position it.

- 5. Check: at n = 900 min⁻¹, there must be <u>no change</u> in control-rod travel between 0.35 atg and 0.6 atg!
- 6. Set control-rod stop at $n = 900 \text{ min}^{-1}$ and 0.35 atg.



C17

Fn

②

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

VDT-WPP 001/4 DAI 8,0 d Edition 4.68

En

PE 6 A 90 C 410 RS 2124 RQ 300/1275 AB 577 DL RS 2124 Y RQ 300/1325 AB 600 DL ./.

supersedes

company: Daimler-Benz engine: OM 327

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15 + 0,1

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9 6 15	6,4 - 6,9 2,9 - 3,8 13,8 -15,3	0,4			
200	6	0,2 - 1,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 300/1275 AB 577 DL

PRG che	Control rod travel	Full-load s Setting po rev/min 3	•	-	cifications (4) rev/min 6	Idle spee Setting p rev/min 7	Control rod travel	Test spe	cifications 5 Control rod travel mm 10	Torque o	Control rod (3)
1250	14,7-15,3	1250	15,0	1275 1320 1350 1380 1440	14,7-15,0 9,0-13,5 3,0-10,7 0 - 7,5	560	0	200 300 400 460	6,6-8,1 4,3-6,4 0,4-2,8 0	500 700 900	15,8-16,3 15,4-15,7 15,0-15,2
	Governor m	ust re	gulat	e 0.5	-1.0 mm fr	om fu	11 10	ad at	n = 1300!		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil ten		Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for Idle spee	uel delivery d (6)
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /~1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
1250	68,5 - 70,5	450	1000 700 500	64,0-67,0 61,0-65,0 57,5-60,5	100	ca.15 mm RW
						./.

Checking PRG che	ck Control rod Itravel				rev/min	idle spee Setting p	Contro' rud travei	Test spe	cifications Control rod travel mm	Torque d	Control rod (3)
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7 -16,3	600	16,0	1330 1380 1440 1530	14,6-14,9 9,0-13,2 0 - 8,6 0		0	300	6,7-8,1 4,2-6,6 0,4-3,2 0	700 850 1000	15,8-16,0 15,3-15,6 14,9-15,1
Gove	rnor must r	egulat	e 0.5	-1.0	mm from fu	11 10	d at	n =	500!		

Torque-control travel on flyweight assembly dimension a

0,35_{mm}

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever p 40°C (104 F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for	uel delivery ර I Contra
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes / mm 7
1300	68,5 - 70,5	500	1000 700 500	64,0 - 67,0 61,5 - 64,5 57,5 - 60,5	100	ca. 16 mm RW
When o	hecking extend b	y±0,5 cm³ ! See	rever	e side!		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

Testoil-ISO 4113

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure bar	mm (1)
	•		

Notes.

(1) when n = **En**

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

VDT-WPP 001/4 MB 8,7a

Edition 6.69

DAI 8.7a supersedes PES 6 A 85 C 410 RS 2105 EP/RSV 300-1000 A 4 B 376 3.66 company: EP/RSV 300-1000 A 4 B 462 DL RS 2169 Daimler-Benz engine Same test specifications for PES 4 A ... S 519 MB 864) PES 4 A ... S 2067 MB 854) (80 PS)

PES 4 A ... S 2168 MB 864)

MB 856) MB 866)(120PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) 3.45 + 0.1RW 21

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,3			
200	6 12 9 21	1,3 - 2,1 8,6 - 9,6 3,9 - 4,4 11,4 -13,9	:			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 300-1000 A 4 B 376

Degree of deflection of control		Control rod travel mm 3	Degree of Control rod deflection of control			Degree of deflection of control lever	rated spe rev/min 8	control rod travel mm	3 Tor	que control Control rod travel mm 11
ca.62	1000 1040 1080	16,0 11,7 6,1	withou spring	t auxi	liary	ca.27	300 100 300	6,0 19,0-21 5,7-6,3	980 500	0
5	1060 1080 1120 1200	7,0-10,5 3,8-8,0 1,2-3,4 0,3-1.0	with au spring	uxilia	ry		380 500	2,5-3,5 0 - 1		1,0-1,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	5a Idle stop		
Test oil temp rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
980	77,0-79,0	1010-1030					300	6	
								./.	

Checking values in brackets

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	tiate rated		Control- lever deflection in degrees 7	Lower	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.62	1000 1040 1080	16,0 12,0 6,5	with spri	out au ng	xilia	ca,27 ry	300 100 300	7 19 - 21 6,7-7,3	980 800 400	0 0,9-1,1 1,5-1,7
29	1080 1120 1250	4,6-8 2,0-4,2 0 - 1	with spri	auxil ng	iary		450 650	2,2-4,5 0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

	ili-load stop amp. 40°C (104°F)	Rotational- speed limitat.		ret delivery naracteristics	Starting f	fuel delivery 5	tdle stop	
rev/min 1	cm ³ /1000 strokes 2	changed to) rev/min 3	rav/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
980	62,2-64,2	1010-1030	700 500	74,5-77,5 73,0-76,0	100	21 mm RW	300	7

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

Testoil-ISO 4113

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
			,

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-'oad control rod travel)

Εn

2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

VDT-WPP 001/4 MAN 8,3 0 (8,3 p Edition 2.64

Er

PE 6 A 70 B 412 RS 308 RG RS 1087 M/

RQ 200/1100 A 237 MAN-Nr. 58

supersedes company: 2.61 MAN

Note: Perform basic adjustment before setting start of delivery.

engine:

D 1246 M 5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 2.5 ± 0.1

mm (from BDC)

/ RW 12

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	9	3,9 - 4,2				
	6 12	2,3 - 2,9 6,1 - 6,7				
200	9	2,6 - 3,3				
Port closin		ence between co	itrol-rod	trave1 9	mm and 21 =	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Checking of slider PRG check Control rod Full-load speed Setting point Control				cifications (4)	Idle speed regulation Setting point Test specifications 5						
rev/min	travel	rev/min 3	rod travel rnm 4	Control red travel mm 5	rev/min 6	rev/min	Control rod travel rnrn 8	rev/min 9	Control rod travel mm	rev/min	travel	
550	15,6-16,4	550	16	1100 1120 1160 1200 1240	15,8-16 11,9-16 4 -10,6 0 - 5 0	530	0	200 250 300 400 430	4,6-6,5 3,7-5,7 2,3-4,6 0 - 1			

Torque-control travel on flywei_ht assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	delivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting f	uel delivery d 6
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes:/ mm 7
1080	82,0 - 84,0	1080				100	mind. 12,4 = 21 mm RW

VDT-WPP 001/4 MAN 8,3 p

Edition 2.64

En

PE 6 A 70 B 412 RS 298

RQ 200/1200 A 262 MAN-Nr. 65

supersedes

1.2.61 MAN

company: engine:

D 1246 M 8

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

2,3 + 0,1

mm (from BDC)

/ RW 12

Rotational speed rev/min 1	Control rod travei mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000 .	9	4,0 - 4,2				
200	6 12 9	2,3 - 2,9 6,1 - 6,7 2,6 - 3,3	0,2			
Port closing 2.5-3° came	g differ haft.	ence between co	ntrol-rod	travel 9	mm and 21 =	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG check Control rod travel		Full-load : Setting po	Control Control rod travel			4	Setting p	Centrel Control rod			Control rod travel		
1	2	3	4	5	6		7	mm 8	rev/min 9	mm 10	11	12	
500	15,6-16,4	500	16	1200 1220 1240 1260 1320	15,5- 11 - 5 - 0 - 0	16 16 12 9	480	0	100 200 250 320 380	6 - 8 4,4-6,4 3 - 5 0 -2,5			

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor d Test oil ten		Control rod stop	Fuel delivery characteristics		3 b	Starting f	d Control
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
1180	71,0 - 73,0	1180				100	mind. 13,9 = 21 mm RW

estoil-ISO 4113

VDT-WPP 001/4 MB 1,8 k Edition 12.68

EP/RSV 250-1500 A 5/15, 333 PES 4 A 50 B 410 RS 50 **RS 68Z**

-1525 A 5/15, 60 -1550 A 5A 307,333

supersedesDAI 1,8k,2.64 company DAI 1,8m,2.64 Daimler-Benz **OM 636**

(C) RS 1010, Z, X

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7 + 0,1

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12	2,2 - 2,7	0,2			
200	9 18 9	0,8 - 1,4 4,5 - 5,2 0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper	Upper rated speed			Intermediate rated speed			r rated spe	3 Torque control		
Degrae of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.74	1550	16	, ithou	without auxiliary spring			250	6,0	1530 490	0
	1620 1740	10 2					100 250	19 - 21 $5,7-6,3$	320	1,2-1,8
	1620	9 - 12	-	23 22			350	3 -4,5		
5	1660 1750	4 - 8 0 - 2,6	with a spring		ary		470 550	0 - 2 0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.	6 Rotational- speed limitat. 3a Fuel delivery characteristics		Starting Idle	fuel delivery	5a) idle stop		
Test oil temp rev/min 1	. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1500 1500 1500 1500 1550	28,2 - 29,2 23,7 - 24,7 27,2 - 28,2 22,7 - 23,7 23,7 - 24,7	1540 1540 1540 1540 1520 1570	S 101	1	rnors verno	-1500 rs-1550	250	6,0 307, 333)	

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/4 MB 5,1 e

Edition 2.69

<u>En</u>

PES 6 A 80 B 410 RS 174

RQV 250 - 1300 A 140 D

ROV 250 - 1400 A 140 D* ./.

supersedes DAI 5,1 e

company: 3.64

Daimler-Benz OM 321 (95 PS) (100 PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
200	6 15 9	1,2 - 2,0 10,3 -11,4 2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250 - 1300

Upper rated s	peed			Intermediate	rated sp	1	Lower rated	speed	1	Sliding si	eeve travel
deflection	rev/min Control	Control rod	•	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		\cup
of control lever	rod travel	rev/min	29	lever	rev/min			rev/min	mm (3)	rev/min 10	mm 11
1	2	3		4	5	6	<u> </u>	8	9	10	
66±1,5	1300 1340 1400 1460 1540	10,6-	_				10±1,5	150 300 500 700 920		1300 1100 900 700	0 0,4-0,6 0,7-0,9 0,9-1,1
							3 a				

Torque control travel a = 1 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil terr		Rotational-speed (20) limitation intermediate speed	Fuel deliv	rery characteristics (50)	Starting ldie awitchir	•	Torque- travel	control 5
			rev/min	cm ³ /1000 strokas	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1280	51,0-53,0	1320						./.

Checking values in brackets

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed		Slidina si	eeve travel
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm
65±1,5	1400 1480 1600 1660	15,0-17 8,0-12 0 - 4	,4	-	-	-	10±1,5	150	7,4-8,0 3,6-5,5 2,6-4,0	1400 1200 1000	0 0,4-0,6 0,7-0,9 0,8-1,0
							3a)				

Torque control travel a = 0,9 mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	stop	Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	rery characteristics (5a)	Starting Idle switchin		Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1060 strokes	rev/min	cm3/1000 strokes	rev/min	travel mm 9
1380	53,0 - 55,0	1420						
				**.				

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed			Sliding sl	eeve travel
		Control rod travel	(a)	Degree of deflection		travel	Degree of deflection	1	Control root travel	t		1
of control lever	rod travel	mm rev/min	(2a)	of control lever	rev/mเก		of control lever	rev/min	mm i	3	rev/min	mm
1,	2	3		4	5	6	7	8	9		10	11
							3a)					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil term	stop p 40°C (104°F) 2	Rotational-speed (2b) timitation intermediate speed (4a)	Fuel deliv high idle s	pery characteristics 5a peed 56	Starting Idle switching	fuel delivery 6	Torque- travel	Control rod travel
rev/min	cm ³ /1006 strokes	esv/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm.
1	2	3	4	5	6	7	8	9
						i		
					<u> </u>		<u> </u>	

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 MWM 2,0a Edition 3.69

En

PES 3 A 65 B320/3 RS 462, 483 (C) RS1049 EP/RSV 300-1300 A2A89D A0A87D supersedes company engine 2,0a (11.60) 2,0b (1.62)

EP/RSV 300-1050 A0A153D* A0A162D* KD 10,5 D (35 PS / 2600) *(28 PS / 2100)

Fendt tractors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,45 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	4,3 - 4,7	0,3			
1000	9 18	2,0 - 2,6 8,2 - 9,1				
200	9	1,4 - 2,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..A2A89D, ..A0A87D

Upper Degree of deflection of control lever	effection frontrol travel deflection of control			rev/min	Control rod travel mm	4 Lowe Degree of deflection of control lever	rev/min	rated speed Control rod travel rev/min mm 8 9		que control Control rod travel mm
ca.49	1300 1350 1400	16,0 11,5 6,5	without	auxil	liary	ca.18	300 100	6,0	See	note
(5)	1350 1400 1600	10,6-12,4 4,4-8,0 0 - 1	with au spring	ıx il iaı	ry		300 400 500 700	5,7 -6,3 4,0 -5,0 1,4 -3,6 0 - 1	Jee	10 66

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	nd stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	Sa Idio	stop
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod trave! mm 9
1280	39,0 - 40,0	1320	800	41,0-43,0				
								./.

Checking values in brackets

1 Upper Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	Degree of deflection of control lever	rev/min	ed Control rod travel mm	3 Tor	Control Control rod travel mm
ca.40	1050 1100 1150	16,0 11,0 5,6	without spring	t auxi	liary	ca.17	300 100 300	6,0 19 - 21 5,7-6,3	See	not
(5)	1100 1180 1320	9,5-12,0 2,7- 4,3 0 - 1	with au spring	uxilia	ry		400 500 700	5,0-6,0 1,2-3,6 0 - 1		

..AOA1530D, ..A162D*

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-id	oad stop	6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	fuel delivery	5a Idle stop		
Test oil tem rev/min 1	st oil temp 40°C (104°F) Note changed to rev/min 2 3		rev/min	cm ⁹ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1030	33,5 - 34,5	1060	800	34,5 - 36,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

Note:

The nameplate described on MWM 1.5 a has recently been extended in column n = (engine speed) and Q = (delivery) to include 2 engine speeds and 2 injected-fuel quantities, so as to be able to effect more precise adjustment in the case of governors with torque control.

As opposed to WPP 001/4, adjustment of governor (torque control) and full-load delivery with fuel-delivery characteristics, the following items thus apply:

- (2) Adjustment in accordance with nameplate n = (1st engine speed) and Q = (1st engine speed)injected-fuel quantity); or in accordance with columns 1 and 2**
- (3) Is adjusted until there is a change in control-rod travel as read off under (2) or (with new nameplate) until 2nd injected-fuel quantity is reached at 2nd engine speed; or in accordance with columns 4 and 5**.
- (6) Is adjusted in accordance with nameplate $n = (1st engine speed + 20 min^{-1})$ or column 3 **
- The full-load data arranged according to engine types apply in line with the above note - to repairs performed on Fendt tractor vehicles on which the new nameplate (with 2 engine speeds and 'ajected-fuel quantities) has not yet been introduced.

En

VDT-WPP 001/4 DAI4,6q2 Edition 9.64

En

PES 6 A 70 C 410 RS 1034 RS 1125 EP/RSV 250-1275 A2B 175 D 350-1275 A2B 175 D supersedes

3.64

company.
engine:

Daimler-Benz OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.9 + 0.1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 3
1000	12	6,5 - 7,0	0,3			,
	6 18	1,2 - 1,9 11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-1275 A 2 B 175 D

Upper	rated speed		Intermediate rated speed			4 Lowe	r rated spe	eed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	deflection travel of control		Degree of deflection of control lever	Control rod travel		rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11
ca.49	1275	16			7.	ca.18	250	6	1250	0
	1320 1390	12,4 5,8	without spring	without auxiliary spring			100 250	19 - 21 5,8-6,2		0,4-0,6 0,9-1,1
5	1360 1450	7 - 10 1,5-3,8	with au spring	uxilia	ry		400 500 700	3,4-4,6 0,6-3,4 0 - 1		1,2-1,4
I	1600	0,3-1					700		<u> </u>	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	oad stop	6 Rotational- speed limitat.	6 Rotational- 3a Fuel delivery characteristics			fuel delivery	5a Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes 5		rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1250	40,0-42,0	1290	800 500	40,0-43,0 40,0-43,0					
								./.	

Checking values in brackets

350-1275 A 2B 175 D

1 Upper Degree of deflection of control lever	deflection of control lever rev/min mm 1 2 3			Intermediate rated speed Degree of deflection of control lever rev/min mm 4 5 6			rev/min	Control rod travel mm	3 Tor	Control rod travel
ca.49	1275 1340 1380	16 10,4 6,3	withou spring		iliary	ca.21	350 150 250	6 19 - 21 8,3-9,9	1250 1000	0 0,4-0,6
5	1350 1400 1500 1550	7,8-10,5 3,7-6,2 0,3-2,2	with a spring		ary		350 450 600 700	5,7-6,3 4-5 0-2,8 0-1.0	800 600 400	0,7-0,9 1,0-1,2 1,2-1,4

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	oad stop	6 Rotational- speed limitat.	(3a) Fuel delivery characteristics		Starting Idle	fuel delivery	5a) idle stop	
Test oil temp. 40°C (104°F) rev/min cm ³ /1000 strokes 1 2		Note changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/mın 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm 9
			6					

Checking values in brackets

B. Governor Settings

1 Upper Degree of deflection of control lever	deflection travel		deflection travel of control		Degree of deflection of control lever	rated spe rev/min 8	ced Control rod travel mm	control Control rod travel mm	
	2	3			I <u>*</u>			·	
5									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	oad stop	6 Rotational- speed legitat	(3a) Fuel delivery characteristics		Starting Idle	fuel delivery	(5a) Idle stop		
Test oil tem rev/min 1	v/min cm³/1000 strokes 2 Note: changed to rev/min 3		rev/min cm³/1000 strokes		rev/min cm ³ / 1000 strokes 6 7			Control rod travel mm 9	

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

JPP 001/4 KHD 7.4

VDT-WPP 001/4 KHD 7,4b Edition 11.68

_En

PE 6 A 75 B 320 RS 1035 RS 151 RS 1118

RQV 250-1250 A 333 D

supersedes company:

5.64 KHD

engine:

F 6 L 613 (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,3			
	9 18	3,0 - 3,7 8,5 - 9,5				
200	. 9	1,9 - 2,8				
	1		ł	Ī		<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

deflection	rev/min	Control rod (18 travel mm rev/min (2)	of control	rev/min	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding s rev/min 10	mm
ca.66	1250 1300 1350 1400 1490	15 - 17, 10 - 14, 5 - 11 0 - 7			· -	ca.10	100 300 500 600 810	7 - 8 3,4-3,8 2,2-3,8 1,2-2,8	1250 1000 800 600	0 0,7-0,9 1,2-1,4 1,4-1,6

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Control-rod stop Test oil temp. 40°C (104°F)		initation intermediate speed			Starting fuel delivery 6 Idle switching point rev/min cm³/1000 strokes		Torque- travel	Control 5 Control rod travel
rev/min	cm ³ /1000 strokes	rev/min 3	rev/min 4	5	6		8	9
1230	65 - 67	1260 - 1280	1000 600	65 - 68 65 - 68				

Checking values in brackets

Test Specifications Fuel Injection Pumps (2) and Governors

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VDT-WPP 001/4 KHD 7,4a(7,4b) Edition 11.68

En

PE 6 A 75 B 320 RS 154 S 1035 S 1118 RQ 250/1250 A 284 A 312 D supersedes company:

5.64 KHD

engine:

F 6 L 613 (120 PS) (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,3			
	9 15	3,0 - 3,7 8,5 - 9,5				
200	9	1,8 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load s Setting po rev/min 3		-	rev/min	Setting	ed regula point Control rod travel mm 8	Test spe	cifications 5 Control rod travel mm	Control rod travel mm	3
450	15,7-16,3	450	16	1250 1260 1280 1310 1370	15,5 -16 14 -16 7,5 -14 0 - 9	440	0	200 250 300 340	6 - 8,1 3,5- 6 0 - 2,5 0		

Torque-control travel on flyweight assembly dimension a =

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Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	3 b	Starting f	uel delivery d Control
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	 cm³/-1000 strokes 5		rev/min 6	cm ³ /1000 strokes:/ mm
1230 1230	65,5 - 67,5 59,0 - 61,0	1230				100	mind. 9,9

Checking values in brackets

PES 6 A 80 C 410 RS 2085 y RQV 300 - 1475 AA 532DL,533DL

RS 2194 y

556DL,562DL

supersedes company:

and DAI15,7f(5.64) Daimler Benz

engine:

OM 352

5.64

* RS 2085 z (See reverse side)

RS 2194 z

(110 PS) *OM 352

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop

(100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	٠9	4,3 - 4,8				
	6 15	1,8 - 2,6 10,4 -10,8				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
	rev/min Control	Control rod	1 (10)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		①
of control	rod travel		(2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.66	1475 1500 1600	14,6-	18,9 17,8 13,5				ca.10	100 250 400	6,7-8,0 5,4-7,0 3,3-5,0	1450	0
	1700 1800 1850	1,6- 0 - 0	8,6 3,0				38	500 600 770	2,5-3,7 1,3-2,7 0	600	0,9-1,1

533 D Torque control travel a = 532 D

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed	Fuel delivingh idle s	peed 50	Starting idle switching			Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ² /1000 strokes	rev/min 6	₇ cm³/100H.	rev/min 8	mm 9
	·							
RS 2 1450	085 y 45,5-47,5	1475	1000 800	45,5-48,5 45,0-48,0 41,0-44,5	100	7,2-8,2	56	6 DL: 2 DL 00

Checking values in brackets

C. Settings for Fuel Injection Pump with Fitted Governor

1	d delivery temp 40℃ (104℉)	Rotational-speed limitation RQV Control-rod stop RQ	Fuel de	livery characteristics	Starting	fuel delivery
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7

..RS 2085z

41,0-43,0

1475

1000 38,5-41,5 800 39,5-42,5 500 36,0-39,5

7,2 - 8,2 100

Intermediate speed 556 DL 1300 U/min

WPP 001/4 IHC 2,2 p

En

PES 4 A 60 B 420 LS 105 ..

EP/RSV 250-750 A4 A 146 d -900..

supersedes company

s,t,u,v,w,x

-950...

engine

IHC DD 132

-1000.. -1200 A2 A 146 d

DU 132 D DD 148

DU 148 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12	4,5 - 5,0	0,3			
	6 18	0,5 - 1,2 8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-750

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	4 Lower Degree of deflection of control lever	rated spe rev/min 8	ced Control rod travel mm 9	3 Tor rev/min 10	que control Control rod travel mm
ca.45	750 800 825	16 9,2 5	withou spring		iliary	ca.22	250 100 250	5,5 19 - 21 5,2-5,8	780 600	0 0,1-0,3
⑤ (800 850 950	7,4-10,2 2,8- 4,5 0 - 1	with a spring		ary		350 400 500	2,6- 4 0,6- 3 0 - 1	300	0,3-0,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	(5a) idle stop		
Test oil tem rev/min 1		Note: changed to rev∄rnin 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7		Control fod travel mm 9	
730	34,5 - 36,5	760 - 770	500	35,0-38,0					
730	38,5 - 40,5	760 - 770	500	40,0-43,0					

Checking values in brackets

* 1 mm less control red travel than col. 2

6.10.61

D11

S105u S105t

Degree of deflection of control	r rated speed Control rod travel mm		Intermed	fiate rated	speed	Control- lever deflection	- Lower	rated speed Control rod travel mm	1 . .	rque control Control rod travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
ca.51	900 950	16 9	و طاحه و			ca.21	250	5,5	880	0
	970	4,6	sprin	out aux ng	XIIIdr	У	100 250	19 - 21 5,2-5,7	1	0,3-0,5
29	950 1000 1100	7 - 10 1,6-3,8 0 - 1	with sprin	auxil Ig	iary		350 400 520	2,6- 4 0,6- 3 0 - 1	300	0,7-0,9

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	Rotational- speed limitat.	(3a) Fu	el delivery aracteristics	Starting f	uel delivery 5	4. Idle stop	
Test oil to rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min 6	cm ³ /1000-strokes	rev/min 8	Control rod travel mm 9
S105v 880-∕	33,0 - 35,0	910 - 920	500	35,0-38,0				
S105t 880	39,0 - 41,0	910 - 920	500	40,0-43,0				

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

Governor 250-950 with pump ... 105 x (engine DD 132) ... 105 w (engine DD 148)

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	3 To	rque control Control rod travel mm
ca.55	950 1000 1020 1000 1050 1150	16 9 5,5 7 - 10,5 2 - 4 0 - 1	spri	auxil		ca.22 y	250 100 250 350 400 520	5,5* 19 - 21 5,2-5,8 2,6-4 0,6-3 0 -1	930 700 300	0 0,3 - 0,5 0,7 - 0,9

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ll-load stop	6 Rotational- speed limitat.		el delivery Paracteristics	Starting f	uel delivery 5	4a Idle stop		
1	mp. 40°C (104°F) cm³/1000 strokes Note: changed to) rev/min 3		rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control root travel mm	
930	31,5 - 33,5	960-970	500	34,0-37,0					
S105v 930	40,0 - 42,0	960-970	500	41,5-44,5				·	

Degree of deflection			intermed	liate rated	speed 6	Control- lever deflection in degrees 7		rated speed Control rod travel mm	rev/min	rque control Control rod travel mm
ca.58	1000 1050 1070 1050 1100 1200	16 8,8 5 7 - 10 2 - 4 0 - 1	spri	auxil		ca.22 °y	250 100 250 350 400 520	5,5 19 - 21 5,2-5,8 2,6-4 0,8-3 0 -1	980 700 350	0 0,4-0,6 0,7-0,9

C. Settings for Fuel Injection Pump with Fitted Governor

	Il-load stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting f	uel delivery 5	idle stop	
	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7		travel mm 9
S105a 980 S105t 980	32,5 - 34,5 38,0 - 40,0	1010-1030 1010-1030	500 500	35,0 - 38,0 40,0 - 43,0				

* 1 mm less control rod travel than col. 2 Checking values in brackets Governor 250-1200 A 2 A 146 d with pump .. S 105 v (engine DU 132)

B. Governor Settings

Degree of deflection of control lever	rated speed Control fod travel mm	rev/min Control rod travel mm rev/min 3	Intermo	ediate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	rev/min	rque control Control rod travel mm
ca.60	1200 1300 1400 1350 1400	16 11,4 6 7,5 - 10 4,4 - 7,8	spr			ca.29	250 100 250 400 500	5,5 19 - 21 5,2-5,8 3,3-4,4 1 -3,3	1180 800 350	0 0,1-0,3 0,3-0,5
20			with spr	n auxil ing	iary				350	0,3-0

C. Settings for Fuel Injection Pump with Fitted Governor

رك	Il-load stop	6 Rotational- speed limitat.	Fuel delivery characteristics Starting fuel delivery				I Control rod		
	mp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7		travel mm 9	
\$105\ 1180	34,5 - 36,5	1210-1230	500	34,0-37,0					

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps 1 and Governors

n_

PES 4 A 60 B 420 LS 181 RSV 250 1400 A4

See overleaf for information in brief on RSV governor.

supersedes

company:

KHD

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7 + 0,1

mm (from BDC)

FOIL GIOSHING BY PLOS						
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	1,2	4,5 - 5,0	0,3			
	6 18	0,6 - 1,2 8,3 - 9,1			1,0	
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of				rated sp	Control rod travel	Degree of Control rod deflection travel			Sliding sleeve travel	
of control lever	rod travel mm 2	mm rev/min (2a) 3	of control lever 4	rev/min 5	mm 4	of control lever 7	rev/min 8	mm 3 9	rev/min 10	mm 11
55±4		16 15 - 17 6,6- 10 2,2- 5 0 - 1				18	250 100 200 250 350 600	5,5 19 - 21 6 - 12 5,5 3 - 4 0	1400 550 450 300	0 0 0,4-1,0 1,7-2,3

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten	stop np. 40°C (104°F) 2	timitation intermediate speed	high idle s	rery characteristics (5a)	idle switchir	g point	Torque-control (5 travel Control re travel	
rev/min	cm ³ /1000 strokes .	rev/min 💮	rev/min	cm ³ /1000 strokes	rev/min	cm ⁸ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
Full	-load stop at	n 1000 must	limit	control-rod t	ravel	10.5!		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D14

BOSCH

Beschaftsbereich KH. Kundendienst. Kfz-Ausrüstung. 5 by Robert Bosch GmbH, D-7 Stuttgart 1, Posifisch 50. Printed in the Federal Republic of Germany. Borings an Rapublique Féderale d'Allemagne par Robert Bosch GmbH.

Provisional test data for RSV governor:

1. Control-lever check measurement:

<u>Vertical position</u> = 40° on device EFEP 56; <u>Max. position</u> (Section B, Column 1) set min. 20 mm control-rod travel (adjust stop screw); Set <u>stop position</u> (control lever 0°); control rod must have between 0.2 and 0.5 mm play.

(Control-lever position "Full" = in pump direction) (Control-lever position "Stop" = opposite)

2. Setting of governor spring (without auxiliary spring):

(Accessible following removal of upper housing screw, n = 0, control lever on stop)

Set in accordance with values in box -----(Section B, Columns 1...3).

(Turn screw with screwdriver to "right" - increased control-rod travel).

3. Setting of auxiliary spring:

(Screw and lock nut beneath nameplate on front of governor).

In accordance with values in box----(Section B, Columns 7...9) for governor.

- 4. Testing various speeds:
 - a) Regulation of <u>lower</u> rated speed (Columns 7...9)
 - b) Regulation of upper rated speed (Columns 1...3)
 The mean values are to be aimed for at the various speeds; if necessary, adjust control lever (within tolerance) and then secure again with stop screw.
- 5. Setting full-load delivery and torque control:

(The full-load screw - bottom - and the adjusting screw and nut for the torque control - top - are accessible after opening the closing cover on the lower part of the governor housing)

- a) Set full-load delivery in accordance with Section C, Columns 1...2. If no full-load delivery is indicated, limit control rod to 1/2 control-rod travel (= 10.5 mm) with full-load screw.
- b) Set torque control in accordance with Section B, Columns 10...11.
- 6. Re-seal governor cover and tighten it securely. Re-tighten screws and nuts and provide lead seal where necessary.

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 7,0 d Edition 6,67

Er

PES 6 A 85 C 410 RS 2205 RQ 250/1250 AB 580 L..
RS 2205, 2144 RQ 250/1050 ABV8694*
RS 2205, 2144 RQ 250/1200 ABV8857**
RS 2205 RQ 250/1250 AB 598 L***

supersedes company: MAN

engine: D 0836 HM 9 H (160 PS) (142 PS)* (135 PS)**

..HM 9, ..HM 9 H (160 PS)***

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7 + 0,1(2205) 1,5+0,1(2144)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 (2205)	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 (2144)	Spring pre-tensioning (torque-control valve) mm 6
	9	3,8 - 4,3	0,4	9	4,9 - 5,5	
1000	6 12	0,5 - 1,2 6,4 - 7,4		6 15	1,3 - 2,1 12,3 -13,1	
200	9	1,1 - 1,9		9	3,9 - 4,4	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..AB 580L(V8566), ..AB 598 L

	Control rod	Full-load spee Setting point Conf rev/min 3	Test spectoriol Control rod travel		 Control rod travel	Test spec	cifications (5) Control rod travel mm 10	rev/min	Control rod travel
600 Breakaway pefore n		600 16	1270 1300 1350 1420	15,6-16,0 10,0-14,6 0 - 8,6 0		100 200 300 460	6,8-8,1 5,5-7,5 3,4-5,5 0	•	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	uel delivery d Control
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1250	81,5 - 83,5	1250	800	74,5 - 78,5	100	18 mm RW
Gover	nor must regulate	1,5 mm from fu	11 1oa	d at n = 1290-130	5!	

Checking values in brackets

D16

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Checking of slider PRG check Control rod travel rev/min 1 2	Full-load s Setting po rev/min 3	•	•	rev/min	Idle spee Setting p rev/min 7	_	Test spe	cifications 5 Control rod travel mm	rev/min	Control rod (3) travel mm
600 15,7-16,3 Breakaway not before n = 1070		16,0	1070 1100 1150 1210	15,6-16,0 9,6-14,5 0- 8,0 0		0	100 200 300 400	7,2-8,1 6,0-8,0 3,7-6,0 0		

Torque-control travel on flyweight assembly dimension a

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop 3a	Fuel delive	ery characteristics	Starting f	uel delivery d l Control
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes / mm 7
1050	78,5 - 80,5	1050	800	74,5 - 78,5		
1200	72,5 - 74,5	1250	800	66,5 - 70,5		

Checking values in brackets

B. Governor Settings

..V 8857 **

Checkin PRG che	(1)	Full-load s	oint	Test spec	cifications (4)	idle spec	ooint		cifications 5	Torque d	Control rod
rev/min	travel mm	rev/min 3	Control rod travel mm	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	travel mm	rev/min 11	travel
	15,7-16,3 kaway not re n = 1220		16,0	1220 1250 1300 1360	15,6-16,0 10,0-15,0 0- 8,5		0	100 200 300 460	6,9-8,1 5,7-7,7 3,5-5,7 0		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	ノつにヽ	Starting f	uel delivery d Control
rev/min	cm ³ /~1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes		rev/min 6	red travel cm ³ /1000 strokes / mm 7
1250	81,5 - 83,5	1250	800	74,5 - 78,5		100 250	19 mm RW 6 mm RW

D17

En Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MAN8,3a

Edition 2.64

PE 6 A 70 B 412 RS 159 S 1058

EP/RSV 250 - 900 A 7 A 353 MAN-Nr. 291, 301 - 303

EP/RSV 200 - .. A 7/11 MAN-Nr. 290, 304

supersedes

3.8.61 MAN

company: engine:

D 1246 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.25 + 0.1

mm (from BDC)

/ RW 12

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	travel	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 4,8	0,3			
	6 12	2,0 - 2,6 6,9 - 7,5				
200 Note: Perf	6 orm basi verv	1,1 - 1,7 adjustment be	ore sett	ng start	of	

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 12 mm and 21 = 2,5-3° camshaft. **B. Governor Settings**250 - 900

250 - 900 A 7 A 353

Upper of Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control lever 4	rated spe rev/min 5	ed Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ced Control rod travel mm 9	3 Tor	que control Control rod travei mm 11
ca.54	900 930 950	16 10,8 6	withou spring		liary	ca.21	100 250	6 19 - 21 5,7-6,3	880 450	0
⑤	930 950 980	9 - 12 3,6-8 1,2-3	with a	uxilia	ry		300 350 450	3,5-4,8 0,5-3 0 -1	300	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	d stop	6 Rotational- speed limitat.		l delivery racteristics	Starting Idle	fuel delivery	(5a)	Idle	stop	
		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm*/1000 atrokes	rev/r 8	mın	Control travel mm 9	l rod
730 730 730 730 880	66,0 - 68,0 69,0 - 72,0 71,0 - 73,0 68,0 - 70,0	760 - 770 760 - 770 760 - 770 760 - 770					n	250) RW	6

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Nr. 291 Nr.301 Nr.302 Nr.303

200 - 500 A 7/11

Degree of deflection of control lever	r rated speed Control rod travel mm		intermed	liate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.28	500 520 530 520 550 600 650	16 9,2 4,5 7 - 11 2,8-3,6 0,5-2 0 - 1	spri	auxil		ca.12 °y	200 100 200 250 300 400	6 19 - 21 5,7-6,3 4 - 5 1,5-3,5 0 - 1	480 370 250	0 0 1,2 - 1,8

C. Settings for Fuel Injection Pump with Fitted Governor

	III-load stop	6 Rotational- speed limitat.	30 Fu	nel delivery paracteristics	Starting f	uel delivery 5			
Test oil to rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes		Control rod travel mm	
480		510 - 520							

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

200 - 600 A 7/11

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lowe rev/min 8	r rated speed Control rod travel mm 9	0	rque control Control rod travel mm
ca.36		16 11,2 5,2 9 - 11,3 3,7-9,2 2 -3,4 0 - 1	spri	auxil		ca.16 'y	200 100 200 250 300 350	6 19 - 21 5,7-6,3 4 - 5 1,5-3,7 0 - 2	580 400 250	0 0 1,2 - 1,8

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop			el delivery aracteristics	Starting f	uel delivery 5	4a Idle stop	
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
580	72,0 - 74,0	610 - 620		•				

Nr.304

D19

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP Q01/4 Edition 18.12.68

PE 3 A 80 C 410 RS 1000 S 75

EP/RSV 250-900 A 1 V 4681 A EP/RSV 250-900 A 7 B 310 EP/RSV 250-900 A 7 AV6690 A 7 BV 7545

supersedes company:

engine

18.7.67 Steyr WD 313 s

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2.15 + 0.1

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	5,5 - 6,0	0,4			
1000	6 15	2,2 - 3,0 11,5 -12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	ed Control rod travel mm 6	4 Lowe Degree of deflection of control lever 7	rev/min	Control rod travel mm	3 Too	que control Control rod travel mm
ca.43	900 930 950	16,0 10,6 6,5	withou spring		iliary	ca.18	250 100 250	6,0 19 - 21 5,7-6,3	880 400	0
(5)	940 960 1050	6,4-10,2 3,0-6,0 0 - 1	with a spring		ry		300 350 420	3,6-4,8 0,6-3,2 0 - 1	290	1,3-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		el delivery racteristics	Starting Idle	fuel delivery	(5a) Idle stop		
	st oil temp. 40°C (104°F) v/min cm³/1000 strokes 2 Note: changed to rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm 9	
880	65,5 - 67,5	910							

Checking values in brackets

11 1 2 "	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	- Lower rev/min 8	rated speed Control rod travel mm	11 0 1	rque control Control rod travel mm
ca.60	900 940 970 960 1020 1100	1670 11,4 6,8 6,0-9,4 0,8-3,0 0 - 1	spri	auxil		ca.25 y	250 100 250 320 450	6,0 19 - 21 5,7-6,3 2,6-4,2 0 - 1	880 400 300	0 0 1,2-1,8

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Fu			otational- oeed limitat. See Fuel delivery characteristics			uel delivery 5	4a idle stop		
Test oil te	cm ³ /1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control root travel mm	
1	2	3			—				
		}							

Checking values in brackets

B. Governor Settings

EP/RSV 250-900 A7 AV6690, ..BV7545

	r rated speed Control rod travel mm 2		Intermed	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm 9	1 \	rque controi Control rod travel mm
ca.48	900 915 930	15,0 10,0 4,0	without auxiliar			ca.17 y	250 100 250	19 - 21	880 400	0
2	920 940 1020	5,0-11,0 2,7- 3,8 0 - 1	with spri	auxil ng	iary		350 420	0,4-3,0	300	1,2 - 1,8

C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting f	uel delivery 5	stop Control rod
rev/min	cmp. 40°C (104°F) cm³/1000 strokes	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes	travel mm
				•			
		,					

^{* 1} mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 DAI 4,6 q 1 Edition 3.64

En

PES 6 A 70 B 410 RS 64

EP/RSV 250-900 A 1 A 363 D

RS 1034 RS 1078 1100 A 1 A 363 D* 1200 A 1 A 363 D** supersedes company:

1.5.61 Daimler-B

engine:

Daimler-Benz OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6 18	1,2 - 1,9 11,1 -11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-900 A 1 A 363 D

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	deflection travel of control			rev/min	ced Control rod travel mm	3 Tor rev/min 10	que control Control rod travel mm 11
ca.49	900 950 990	16 11,4 6	withou spring	without auxiliary spring			250 100 250	6 19 - 21 5,7-6,3	880 700 500	0 0,4-0,6 0,7-0,9
5	970 1000 1050	8 - 10,5 3,8- 8 0,5-3,5	with auxiliary spring				350 400 550	3,4-4,6 1,5-3,8 0 - 1	300	0,9-1,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-le	oad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	5a) Idie stop	
Test oil tem rev/min 1	p. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	37,5 - 39,5	910 - 920	700 500	39,0 - 42,0 41,5 - 44,5	100	mind.7,9	250	6
								./.

Checking values in brackets

B. Governor Settings

250-1100 A 1 A 363 D

1 Uppe	r rated speed		Intermediate rated speed			- Lower rated speed			3 Torque control	
Degree of deflection of control lever	travel mm	travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rew/min	travei mm 9	rev/min	travel mm 11
ca.65	1100 1150 1210	16 12 5,8	with spri	out au	<u> </u>	ca.28		6 19 - 21 5,7-6,3	1080 900 700 500	
29	1180 1200 1250 1350	7,5-10,5 4,8-8,5 1,6-4,4	with spri	auxil ng	iary		350 450 600	3,7-4,8 0 -3,2 0 - 1	300	

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop Test oil temp. 40°C (104°F)		Rotational- speed limitat.		nel delivery naracteristics	Starting t	uel delivery 5	Idle stop	
rev/min	cm ³ /1000 strokes	changed to) rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
1080	38,5-40,5	1110-1130	700 500	39,0-42,0 40,0-43,0	100	mind.7,9	250	6
1080	38,0-40,0	1110-1130	700 500	38,5-41,5 39,5-42,5				
·								

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

** 250-1200 A 1 A 363 D

Degree of deflection of control lever	r rated speed Control rod travel mm		interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	1 3 1	rque control Control rod travel mm 11
ca.70	1200 1250 1310	16 11,7 · 6	with spri	out au ng	xilia	ca.27 y	250 100	6 19 - 21	1180 900 600	0 0 - 0,2 0,5- 0,7
20	1280 1300 1350 1450	7 - 10 4,4-8 1 - 4 0 - 1	with spri	auxil ng	iary		250 350 450 600	5,7-6,3 3,6-4,8 0 - 3 0 - 1	300	0,9-1,1

C. Settings for Fuel Injection Pump with Fitted Governor

	Il-load stop	6 Rotational- speed limitat. Fuel delivery characteristics			Starting f	uel delivery 5	Idle stop		
rev/min	mp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
1180	39,0-41,0	1210-1230	700 500	39,0-42,0 40,0-43,0	100	mind.7,9	250	6	
1180	38,5-40,5	1210-1230	700 500	38,5-41,5 39,5-42,5					

Checking values in brackets

Test Specifications Fuel Injection Pumps 2 and Governors

40

VDT-WPP 001/4 BOS 5,4 h Edition 11.66

<u>E</u>

PE 6A65 B 312 LS	399 RQ 200/1350	A 430 D (1)	supersedes 10.64	
PE 6A65 C 312 LS	1009 RO 200/1350	AA 500 DL (1)	company: Bussing	
PE 6A65 C 312 LS	1009 RQ 250/1300	AB 500 DL (2)	engine: U 5-125	
PE 6A65 C 312 LS	1009 X RQ 200/1350	AB 500 DL (3)	"X" -110	PS
DE 6265 C 312 IS	1000 pn 200/1200	AR 602 11 (4)		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000 .	12	5,7 - 6,2	0,3			
	6	1,4 - 21,				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200/1350 A 430 D, ..AA 500 DL (1+3)

	hecking of slider Full-load speed RG check Tell-load speed				cifications (4)	Idle spec	_		cifications (5)	Torque control		
rev/min	Control rod	rev/min	Control rod travel mm	Control red travel rnm 5	rev/min	rev/min	Control rod travel		Control rod	rev/min	Control rod travei	
	14,4-15 kaway not re n = 1370		14,7	1370 1390 1410 1430 1480	14,4-14,7 8,0-14,0 1,0-11,0 0 - 8 0			100 150 200 250 320	5,8-8,1 4,6-7,0 3,2-5,6 1,2-3,8	1100	15,8-16,0 15,0-15,4 14,7-15,0	

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: A

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop [Sa] Fuel delivery characteristics				Starting fuel delivery Idle speed			
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	rod travel cm³/1000 strokes:/ mm		
1350	57,0 - 59,0	. 500	500 900 1200	58,0 - 61,0 60,5 - 63,5 57,5 - 60,5			(1)		
							./.		

Checking values in brackets

		~~~~~										
			Full-load speed regulation Setting point   Test specifications 4					tion   Test spe	cifications (5)	Torque control		
rev/min	Control rod travel mm	rev/min 3	rod travel mm	Control red travel mm 5	rev/min	rev/min 7	Control rod travel rnm 8	rev/min 9	travel mm	rev/min	Control rod travel mm	
	15,7-16,3 kaway not re n =1320	550	16,0	1320 1350 1380 1450	0 - 9,5		0	100 200 300 400	5,7-7,7 4,2-6,4 1,5-3,8 0	1100	15,8-16,0 15,3-15,6 14,7-15,0	

Torque-control travel on flyweight assembly dimension a =

0,4 mm

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104 F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fi Idle spee	uel delivery
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	16v/min 4	cm ³ /-1000 strokes 5	revimin 6	cm ³ /1000 strokes / mm 7
1300	59,0 - 61,0	500	900 500	60,5 - 63,5 59,0 - 62,0		(2)
1350	54,0 - 56,0	500	500 900 1200	55,5 - 58,5 58,0 - 61,0 55,0 - 58,0		(3)

Checking values in brackets

## **B. Governor Settings**

200/1200 AB 602 DL

(4)

Checking of slider PRG check Control rod travel rev/min 1 2		Full-load s Setting po rev/min 3	rev/min	Idle spec Setting p rev/min 7	Control red travel	rev/min	Control rod travel mm 11				
	15,7-16,3 kaway not bre n =1220		16,0	1220 1250 1280 1330	14,4-14,8 6,5-12,6 0 - 8 0	420	0		6,0-8,0 3,4-6,8 0 -2,5 0	Ì	15,6-16,0 14,6-14,9

Torque-control travel on flyweight assembly dimension a =

0,4

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil ten	elivery on ontrol lever np 40°C (104°F)	Control rad stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery d (Control
rev/min	cm ³ /-1000 strokes	rey/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1200	58,0 - 60,0	500	900 500	60,5 - 63,5 58,0 - 61,0	100	ca.18mm RW (4)

Checking values in brackets

## **Test Specifications** Fuel Injection Pumps 2 and Governors

VDT-WPP 001/4 MAN 8,0h(8,0i Edition 2.64

PE 6 A 70 B 412 RS 159 z RQ 200/975 A 138, 195

supersedes

8:61 MAN

RS 1058z MAN-Nr. 8Q*, 81*, 55**

company:

D 1046 M*

Plunger-and-barrel assemblies with upper and lower helix and starting grooves.

D 1246 M 4**

Note: Perform basic adjustment before setting start of

delivery
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2.25 + 0.1

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery 3 cm ³ /100 strokes 2 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6 12	2,0 - 2,6 6,9 - 7,5				
200	6	1,1 - 1,7				
Port closi 2.5-3° cam		ence between co	ntrol-rod	travel 9	mm and 21 =	

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

PRG che	ev/min travel mm rev/min mm 3 rev/min 4		Control rad travel	Test spec Cantrel red travel	cifications (4) rev/min 6	rev/min 8 9			cifications 5 Control rod travel mm	Torque o	Control rod	3
550	15,7-16,3	550	16	975 1000 1040 1080 1120	15,8- 16 11 - 15 4 -10,4 0 - 5,4 0	540	0	100 200 300 400 440	6,1-8,1 4,7-6,8 2,5-4,8 0 -1,6			

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

governor	ull-load delivery on overnor control lever est oil temp. 40°C (104°F)		er control lever (2) (3a		3	Fuel delivery characteristics			Starting f	
rev/min	cm ³ /-1000 strokes	•	rev/min 3		rev/min	cm ³ /-1000 strokes 5		rev/min	Control red travel cm ³ /1000 strokes:// mm	
950 950 950	72,0 - 74,0 76,0 - 78,0 75,0 - 77,0		950 950 950					100	mind.13,9	

Checking values in brackets

Nr.80* Nr.81* Nr.55**

Testoil-ISO 4113

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## **Test Specifications** Fuel Injection Pumps 1 and Governors

VDT-WPP 001/\$ MAN 8,0 i Edition 2.64

PE 6 A 70 B 412 RS 159

RQV 250/750/900 A 180

3.8.81 supersedes

MAN-Nr. 52*, 302, 303

company:

Note: Perform basic adjustment before setting start of delivery.

MAN D 1046M* engine:

D 1246M 6

All test apricifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

 $2.3 \pm 0.05$ 

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	.9	4,6-4,8	0,3			
	6 12	2,0-2,6 6,9-7,5				
200	6	1,1-1,7				

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

Upper rated s	peed			Intermediate	rated spe	ed		Lower rated	speed		Sliding sleeve travel	
	rev/min Control	Control rod travel		Degree of deflection	Control rod travel Degree of deflection Control rod				1			
of control	rod travel	mm rev/min	(28)	of control lever	rev/min	mm	<b>(</b>	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	$\smile$	4	5	6		7	8	9	10	11
65±1,5	900 920 960 1010	14,8-18 9,6-14 0 - 7	,4	50±1,5	750 760 780 810	12	-19,5 -16 -10 0	10±1,5	200 300 650 750	7,3-8 3,6-4 3,6-4 0	-	-
		Port cl 2,5-3°	os: car	ng diff nshaft.	erenc	e be	tween	centrol	rod t	ravel 12 m	m and	21 =

Torque contro! travel a =

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem		Rotational-speed 20 limitation intermediate speed				fuel delivery 6	Torque- travel	Control 5  Control rod
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
Nr.52* 880 Nr.302 730 Nr.303 880	71,0-73,0	910 - 920 760 - 770 910 - 920					,	

Checking values in brackets

VDT-WPP 001/4 HAN 2,8 u 2 Edition 11.64

En

PE 4 A 60 B 310 LS 81 LS 166

LS 166 LS 171 1065 EP/RSV - 900 A 1 A 31 - 950 A 1 A 31 -1000 A 1 A 31 supersedes 7.60

company: Hanomag engine: D 28...

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2.1 + 0.1

mm (from BDC)

-1300 A 1 A 31

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12	4,5 - 5,0	0,3			
	6	0,6 - 1,2				
	18	8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

EP/RSV 250 - 900 A 1 A 31

Upper of Degree of deffection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deffection of control lever	Degree of Control rod deflection travel		Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm	3 Tor rev/min 10	que control Control rod travel mm 11
ca.50	900 960 1010	16 11 4,5	withou spring		liary	ca.24	250 100 200	6 19 - 21 8,2- 10	880 400 300	0 0 1,2-1,8
5	980 1050 1150	6,8- 10 0,9- 3,2 0 - 1	with a spring		ry		250 350 450	5,7-6,3 1 -3,4 0 - 1		

The numbers denote the sequence of the tests

LS 166 with governor 250-900

## C. Settings for Fuel Injection Pump with Fitted Governor

	ad stop	6 Rotational- speed limitat.				fuel delivery	5a) Idle stop		
Test oil temp rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm	
880	40,0-42,0	910 - 920							
								./.	

Checking values in brackets

EP/RSV 250 - 950 A 1 A 31

defic	ree of ection ontrol	r rated speed Control rod travel mm		Intermed	liate rated	speed	Control- lever deflection in degrees 7	- Lower rev/min 8	rated speed Control rod travel mm		rque control Control rod travel mm
ca	.50	950 1000 1030	16 10,6 6	with spri	out au ng	xilia	ca.23 ry	250 100 250	6,5 19 - 21 6,2-6,8	930 400 290	0 0 1,2-1,8
2	9	1000 1050 1100 1150	8,8-11,8 2,8- 5,4 0 - 2,3 0 - 1	with spri	auxil ng	iary		350 400 500	1,2-3,8 0 -2,1 0 - 1		

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>2b</b> Fu	ll-load stop	6 Rotational- speed limitat.		iel delivery iaracteristics	Starting fuel delivery 5 4a Idle stop			
Test oil te	emp. 40°C (104°F) cm ³ /1000 strokes	Note: changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LS 81	with governor	250 - 950						
930	40,0 - 42,0	960 - 970						

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

## **B. Governor Settings**

EP/RSV-250 - 1000 A 1 A 31

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm		rque control Control rod travel mm
ca.55		16 10,5 5,7 3,5 - 7,8 0,5 - 3,2 0 - 1	spri	auxil		ca.25 y	250 100 250 300 350 450	6 19 - 21 5,7-6,3 3,7-4,8 0,8-3,3 0 - 1	980 400 300	0 0 1,2-2,2

## C. Settings for Fuel Injection Pump with Fitted Governor

	li-load stop		speed limitat. Characteristics			Starting fuel delivery 5 da Idle stop			
Test oil te rev/min 1	mp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LS 81	with governor	250-1030		_				·	
980	38,5 - 40,5	1010-1030		•					

1 Uppe	r rated speed		intermed	liate rated	speed	<b>(</b>	Lower	rated speed	17.0		
Degree of deflection of control lever 1	Control rod travel mm	Control rod travet mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm	
ca.72	1300 1340	16 11,2		out au	xilia	ca.26	250	6	1280 400	0	
	1380	5,7 7 - 10	sprin with	ng auxil	iarv		100 250 300	19 - 21 5,7-6,3 3,8-4,8	290	1,2 - 1,8	
20	1380 1420 1500	3,7-7,8 0,8-3,5 0 - 1	spri				360 4 <b>5</b> 0	0,6-3,3			

## C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	Rotational- speed limitat.		el delivery aracteristics	Starting f	uel delivery 5	4a Idle stop		
	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LS 8	1 with governor	250 -1300		,					
1280	40,5 - 42,5	1310-1330							
				:			•		

Checking values in brackets

* 1 mm less control rod travel than col. 2

## **B.** Governor Settings

Degrae of deflection of control lever	r rated speed   Control rod   travel   mm   2		Intermed	liate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm		rque control Control rod trave! mm:
		·								
29									}	

## C. Settings for Fuel Injection Pump with Fitted Governor

ili-load stop				Starting (	Trule O			
emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ⁹ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
71 with governo 56,5 - 58,5		ŀ	•	j			·	
	cm ⁹ /1000 strokes 2 71 With governo	mp. 40°C (104°F)  cm³/1000 strokes  2  71 with governor 250 - 950	mp. 40°C (104°F)  cm³/1000 strokes  2  71 With governo 250 - 950	speed limitat. Note: changed to) rev/min 2  71 With governo 250 - 950	mp. 40°C (104°F)  cm³/1000 strokes  rev/min  rev/min  rev/min  rev/min  71 with governor 250 - 950	speed limitation of the speed	mp. 40°C (104°F)  cm²/1000 strokes 2  Note: changed to) rev/min 3  rev/min 4  5  rev/min 6  7  With governor 250 - 950	

Checking values in brackets

## **Test Specifications Fuel Injection Pumps** and Governors

VDT-WPP 001/4 MWM 2,0 a

Edition 3.69

RS1049

PES 3 A 65 B320/3 RS462, 483 EP/RSV 300-1300 A2AB9D

AOAB7D company:

En

supersedes 2,0a (11.60) 2,0b (1.62)

EP/RSV 300-1050 A0A153D* A0A162D*

engine:

KD 10,5 D (35 PS / 2600) *(28 PS / 2100( ./.

Fendt tractors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,45 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	4,3 - 4,7	0,3			
1000	9	2,0 - 2,6	7			
	18	8,2 - 9,1				
200	9	1,4 - 2,1				

Adjust the fuel delivery from each outlet according to the values in

**B. Governor Settings** 

..A2A89D, ..A0A87D

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod Degree of Control rod travel deflection travel				Degree of deflection of control lever	rated spo rev/min 8	Control rod travel mm	3 Tor	que control Control rod travel mm 11
ca.49	1300 1350 1400	16,0 11,5 6,5	without spring	auxi	liary	ca.18	300 100 300	6,0 19 - 21 5,7-6,3	See	not
5	1350 1400 1600	10,6-12,4 4,4-8,0 0 - 1	with auxiliary spring				400 500 700	4,0-5,0 1,4-3,6 0 - 1		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.		el delivery recteristics	Starting Idle	fuel delivery	(5a) Idl	5a Idle stop		
Test cil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm 9		
1280	39,0-40,0	1320	800	41,0-43,0						
								./.		

Checking values in brackets

#### ..AOA153D, ..A162D*

Degree of deflection of control rev/min mm			deflection travel of control			Degree of deflection of control			0	que control Control rod travel
lever 1	rev/min 2	mm 3	lever 4	rev/min 5	6 6	lever 7	rev/min 8	mm 9	rev/min 10	mm 11
ca.40	1050 1100 1150	16,0 11,0 5,6	without spring	auxi	liary	ca.17	300 100 300	6,0 19 - 21 5,7-6,3	See	note
5		9,5 - 12,0 2,7 - 4,3 0 - 1	with auxiliary spring				400 500 700	5,0-6,0 1,2-3,6 0 - 1		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	oad stop	6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	fuel delivery	Sa) idle stop	
Test oil temp. 40°C (104°F)  rev/min		Note changed to rev/min 3	rev/min 4	cm ⁹ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1030	33,5 - 34,5	1060	800	34,5 - 36,5				
		:	(6a)					

Checking values in brackets

* 1 mm less control rod travel than col 2

#### Notes:

The nameplate described on  $\underline{\text{MWM 1.5 a}}$  has recently been extended in column n = (engine speed) and Q = (delivery) to include 2 engine speeds and 2 injected-fuel quantities, so as to be able to effect more precise adjustment in the case of governors with torque control.

As opposed to WPP 001/4, adjustment of governor (torque control) and full-load delivery with fuel-delivery characteristics, the following items apply:

- (2) Adjustment in accordance with nameplate n = (1st engine speed) and Q = (1st injected-fuel quantity); or in accordance with columns 1 and 2*.
- (3) Is adjusted until there is a change in control-rod travel as read off under (2) or (with new nameplate) until 2nd injected-fuel quantity is reached at 2nd engine speed; or in accordance with columns 4 and 5*.
- (6) Is adjusted in accordance with nameplate n = (1st engine speed + 20 min⁻¹); or column 3*
- * The full-load data arranged according to engine types apply in line with the above note to repairs performed on Fendt tractor vehicles on which the new nameplate (with 2 engine speeds and injected-fuel quantities) has not yet been introduced.

VDT-WPP 001/4

Edition 3.71

supersedes

PES 4 A 70 C 410 RS 1177

EP/RSV 250-1050 A1 B12L

PES 3 A 70 C 410 RS 1177

EP/RSV 250-1050 A1 B1024L ./.

company:

Lamborghini

engine:

FL 4 FL 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,2 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm 6
	6	1,2 - 1,9				
1000	12 18	6,5 - 7,0 10,9 -11,9	0,4			
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

250-1050 A1 B12L

Upper	rated speed		Intermediate rated speed			4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.58	1050 1100 1150	16,0 11,3 5,2	withou spring		iliary	ca.25	250 100 250	6,0 19 - 21 5,7-6,3	1000 450	0
5	1120 1160 1260	8,0-11,0 2,8-6,2 0-1	with auxiliary spring				350 440	0,9-3,3	300	1,2-1,8

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	d stop				Starting Idle	fuel delivery	5a Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1000	42,0-44,0	1070							
								./.	

Checking values in brackets

Degree of deflection of control lever	deflection travel travel of control mm rav/min		Interme	Intermediate rated speed 4 5 6		Control- lever deflection in degrees 7	- Lower	rated speed Control rod travel mm		rque control Control rod travel mm
ca.58	1050 1100 1150	16,0 11,4 5,2		without auxilia spring			250 100 250	6,0 19 - 21	1000 450	· ·
29	1120 1160 1260	7,8-10,8 2,5- 5,0 0 - 1	with spri	auxiling	liary		350 450	5,7 - 6,3 0,9 - 3,4 0 - 1		1,2-1,8

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>2b</b> Full-load stop			speed limitat. Characteristics			fuel delivery 5	4a Idle stop		
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9	
1000	40,5-42,5	1070							

Checking values in brackets

* 1 mm less control rod travel than col. 2

## **B. Governor Settings**

Degree of deflection of control lever	deflection (rave) (rave						Control- lever deflection in degrees 7  Lower rated speed  Control rod travel mm  rev/min mm  9			Torque control Control rod travel rev/min mm 10 11		
29												

## C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop emp. 40°C (104°F)	Rotational- speed limitat. Note: changed to)	ch	aracteristics	Starting fuel delivery 5 4a Idle stop Idle Contribution			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes		mm
1	2	3	4	5	6	7	8	9
								,

E10

VDT-WPP 001/4

2. Edition

PES 3 A 80 C 320 LS 1249 PES 2 A 80 C 320 LS 1250

EP/RSV 250-1100 A1B11R EP/RSV 250-1200 A1B11R ./. supersedes

3.71

1B11R ./. company: engine.

Lamborghini FL 1003 FL 1002

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4	9	4,6 - 5,0	
	6 15	1,2 - 2,0 10,3 -11,4		6 -	2,0 - 2,8	
200	9	2,9 - 3,7		6	0,1 - 0,7	

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

Upper	Upper rated speed			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.60	1100	16,0	without auxiliary spring			ca.25	250	6	1080	0	
	1160 1190	9,6 5,5					100	19,0-21,0			
<b>⑤</b>	1150 1200 1300	9,6-12,4 3,8-6,7 0,3-1,0	with auxiliary spring				250 300 450	5,7-6,3 4-5 0-1	300	1,2-1,8	

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	Starting fuel delivery		5a) Idle stop	
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes	rev/min 8	Control rod travel mm 9	
1100	53,5-55,5	1120							

Checking values in brackets

250-1200 A1 B11R

Degree of	r rated speed Control rod travel mm		Intermediate rated speed 4 5 6			Control- lever deflection in degrees 7	Lower rated speed Control rod traval rev/min mm		3 To rev/min 10	rque control Control rod travel mm
ca.64	1200 1250 1280	16,0 10,0 5,7	with spri	out au ng	xilia:	са.25 У	250 100 250	6 19,0-21,0 5,7- 6,3		0 0 1,2-1,8
29	1250 1300 1400	8,0-11,2 2,2- 5,0 0,3- 1,0	with spri	auxil ng	iary		300 400 450	4,0-4,8 0-1,7 0-1		

## C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> Fu	ill-load stop	6 Rotational- speed limitat.	3a Fu	el delivery eracteristics	Starting (	Starting fuel delivery 5 4a		
Test oil to rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7		Control rod travel mm 9
1200	54,5-56,5	1120						

Checking values in brackets

* 1 mm less control rod travel than col. 2

## D. Adjustment Test for Manifold Pressure Compensator

Testatn =

Testoil-ISO 4113

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
		•;	

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

**Test Specifications** Fuel Injection Pumps 1 and Governors

VDT-WPP 001/4 2. Edition

PES 8 A 75 D 320 RS2357 RQV300-1500 AB821D,823D,844D

RS2357 RQV300- 800/1500 AB824,825

RS2358 RQV300-1500 AB822D

Test details see page 4!

1 - 8 - 7 - 3 - 6 - 5 - 4 - 2 je  $45^{\circ}$ 

supersedes

IHC company:

DV 550 - 200, 180 PS DV 462 - 160 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

3 05-0 1

mm (from BDC)

see page 4!

Rotational speed rev/min 1	travel		Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /190 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	10,0	6,2 - 6,5				
1500	ca.7,8	max. 4,5 0,1 - 1,4	(Cyl.: 1- (Cyl.: 2-	4-6-7) 3-5-8)		
300	ca.8,6	min. 3,4 0,1 - 1,4	(Cyl.: 1- (Cyl.: 2-	4-6-7) 3-5-8)		

Adjust the fuel delivery from each outlet according to the values in

**B. Governor Settings** 

RQV .. 823D

Upper rated a	peed		interme	diate rated s	peed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	(197AG)	Degree deffect of cont	ion	Control rod travel	Degree of deflection of control		Control rod travel		0
lever	rod travel mm	rev/min	a) lever	rev/min	mm (4	lever	rey/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	2000 1500 1600	15,0-18,2 0 15,0-17,6 10,0-15,0		-	-	ca.10	250 400 500 650 860	6,5-8,2 2,9-4,5 2,3-3,3 1,1-2,1	-	-
	1700 1940	4,6-10,4 0				38	300	U		

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a	Starting idle switchir		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
(200PS	63,5-65,5 (RW 10,0)	1565:-0,1mm- 1650: 2,5-3,5 mmRW less than column 2!		hecking exter	100 300 id by	1,4- 1,8	(Cyl.	1-4-6-7 2-3-5-8 =0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Upper rated sp	eed			Intermediate	rated spe	ed	Lower rated	speed		Sliding sl	eeve travel
		Control rod travel		Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
	rodtravel mm	mm rev/min	(2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm ③	tev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.66	1600 2000	15,0-18	3,2	-	-	-	ca.10	250 400	6,5-8,2 2,9-4,5	1600	8,3
ca.65	1500 1600	15,0~17					:	500 650	'2,3-3,3 1,1-2,1	1200	0
	1700	4,6-10	,4					860	0	700	1,0-1,2
	1940	U					(3a)				

Torque control travel a = 1,1 mm

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-toad de Control-roo Test oil tem	13(00	Rotational-speed (2b) Ilmitation Intermediate speed	Fuel deliv high idle s	ery characteristics 5a peed 5b	Starting to the switching to the switching to the start of the switching to the switching t		Inter speed	mediate     Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm3/1000 strokes	rev/min 8	travel mm 9K
(180PS	59,0-61,0	1560:-0,1mm 1655:2,0-3,0 mmRW less than column 2!	1000	54,0-58,0 Char	300 (Cy1	1,4 -1,8 .1-4-6-7)	(Cyl. = -1800	2-3-6-7 0) /min

Checking values in brackets

* 1 mm less control rod travel than col 2

### **B.** Governor Settings

#### RQV ..822D with Ppe 2358

Upper rate	d speed			Intermediate	rated spe	ed		Lower rated	speed		Sliding sl	eeve travel
Degree of deflection	rev/min (Control	Control rod	(1a)	Degree of deflection		Control ros	d	Degree of deflection	1	Control rod travel		①
of control lever	rod travel		(2a)	of control lever	rev/min	mm	4	of control lever	rev/min	mm ③	rev/min	mm
1,	2	3		4	5	6		7	8	9	10	11
ca.68	1600	15,0-18	8.2	-	-	-		ca.10	250	6,5-8,2	1600	8,3
Cuio	2000	0	-,-		1				400	2,9-4,5		
ca.6	1500	15,0~1							500 650	'2,3-3,3 ' 1,1-2,1	1500	0
	1600	10,0-1							860	0	700	0,5-0,7
	1940	0						<b>3</b> a				

Torque control travel a =

0,6_{mm}

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem rev/min		Rotational-speed 2b limitation intermediate speed 4a rev/min	Fuel deliv high idle s rev/min	peed 5b cm ³ /1000 strokes	switchir	tuel delivery 6 ng point cm ³ /1000 strokes	Interi speed rev/min 8	Control rod travel mm
(160PS) 1500	49,0-51,0	1560: 0,1mm 1635:1,5-2,5 mmRW less than column 2!	1000	45,0-48,0	100 300	11,1-13,4 1,4- 1,8 ⁾ (	Cyl.1	-4-6-7 -3-5-8 = 0)

Checking values in brackets

Upper rated s	peed			intermediate	rated spe	ed	L	ower rated.	speed		Sliding si	eeve travel
deflection		Control rod travel	0	Degree of deflection of control		Control rod travel	d	Degree of leflection of control		Control rod travel		1
lever	mm	rev/min	(2a)	lever	rev/min	mm (4	) "	ever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	7	8	9	10	11
ca.63	1620 1870	13,8-16 0	,6	ca.41	800 900	8,4-11, 5,3- 5,		ca.10	200 350	6,0-8,0 3,6-5,0		0,7-1,8 2,2-2,8
ca.50	1520 1650	ca.9,5	,7		1500 1650	5,3- 5, 0	7		500 680	'2,0-3,2 0		7,4-7,6 7,4-7,6
	1700	0 - 4	,4			_				•	1800- 1900	
	1790	U						3a)			-	- (11)

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	stop	Rotational-speed (2b) Ilmitation Intermediate speed	Fuel deliv	rery characteristics 5a speed 5b	Starting Idle switchir	$\sim$	Inter speed	mediate     Control rod
rev/min	cm ³ /1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm3/1000 strokes	rev/min 8	travel mm
200 P	S with govern	pr 825:						
1500	63,5 - 65,5	1550: 0,1mm 1635:2,5-3,5	700	58,5-61,5	100 (Cyl	11,1-13,4 )	(Cy1.	2-3-5-8: 0)
		mmRW less than column 2!			300 (Cyl	mind.3,4 .1-4-6-7)	(Cyl. 0,1-	2-3-5-8 1,5

Checking values in brackets

* 1 mm less control rod travel than col 2

180 PS with governor824:

1500 59,0 - 61,0

700 54,5-57,5

Change-over point 230-150 U/min.

#### **B.** Governor Settings

Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed		Sliding s	eeve travel
Degree of deflection of control lever	rod travel mm	Control rod travel mm rev/min	(la) (2a)	Degree of deflection of control lever	rev/min	travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm (1)
1	2	3		4	5	6	/	8	9	10	11
									1		
							_			1	
							<b>3a</b>				

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Fuil-load d Control-ro- Test oil ten	elivery d stop np. 40°C (104°F) 2	milennediate speed	Fuel deli high idle s	very characteristics 5a	Starting Idle switchin	fuel delivery 6	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	!	cm³/10/00 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
		-						
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					1			
				<u> </u>	!,			L

Checking values in brackets

#### 1. Additional test items:

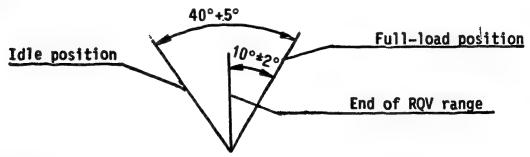
- 1.1 Supply pressure 2.5 bar
- 1.2 With engine off, check whether stop is reliably reached with shutoff device from full-load position. It should be noted that pin of control-rod stop does not go back.
- 1.3 Set shutoff device to 0.5-1.0 mm control-rod travel.
- 1.4 In start-of-delivery position of cyl. 1 (at drive) with control-rod travel 10.0 200 bhp, 9.5 180 bhp, 8.4 160 bhp effect movement with positioning screw (whilst pressing in pin) until it is in groove of camshaft. Tighten device and check again; correct if necessary. Then drill holes in pump housing and pin. In this position, set coupling such that jaws are horizontal; in this process check whether coupling can turn freely.

Note: When tightening coupling, positioning device is not to be used as locking mechanism!

- 2. Special operating conditions result in a special governor setting: (applies to 824 and 825)
  - 2.1 Calibrate slider, measure sliding-sleeve travel and calibrate plate cam in accordance with WPP 001/4, 3rd Supplement, pictures 5...8.

The measuring tool is now to be ordered under the designation EPEP 618 - 1 682 329 038.

- 2.2 Fit governor cover, attach protractor and control-rod-travel measuring device.
- 2.3 Check average rated speed, as well as upper and lower rated speed. Provisionally set engine-speed limitation. It is to be ensured that the control-lever travel from the idle position to full-load speed regulation is  $40 + 5^{\circ}$  and  $10 \pm 2^{\circ}$  from the end of the RQV range to full-load speed regulation (see diagram).



If this is not the case, effect correction in accordance with Fig. 5-6 and 8!

2.4 Set full-load control-rod travel and full-load delivery; measure fuel-delivery characteristics. The switching point is the fixing/release of the full-load position in starting travel or starting quantity

Testoil-ISO 4113

VDT-WPP 001/4 DAI 5.6 d Edition 10.65

PES 6 A 80 C 410 RS 2014 ROV 300-1425 AA 434 D

* ROV 300-1000/1425 AA 504 D

* ROV 300-1000/1425 AA 435 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 2.64

company: Daimler-Benz

OM 322

### A. Fuel Injection Pump Settings

Port closing at prestroke

* See note on reverse

2.15 + 0.1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 5,0	0,3			
	6 15	1,2 - 2,0 10,4 -11,8				
200	6	0,4 - 1,2				

Adjust the fuel delivery from each outlet according to the values in [

**B. Governor Settings** 

300-1425 AA 434 D

deflection of control lever	ev/min Control rod travel	Control rod travel mm rev/min 3	(1a) (28)	Intermediate Dagree of deflection of control lever	rated spe rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	Sliding si rev/min 10	mm
1	425 450 500 550 600 700	8,5- 13 4 - 10	5,5 3,5	·			10±1,5	400 600	7 - 8 4,5-6,7 3,2-3,8 2 -3,6 0,3-1,5	1400 1200 1000 800 600	0 0,4-0,6 0,8-1,0 1,2-1,4 1,4-1,6

Torque control travel a = 1.5

#### C. Settings for Fuel Injection Pump with Fitted Governor

	stop ip. 40°C (104°F) . 2	Rotational-speed 2b limitation intermediate speed rev/min 4a	high idle s	peed (5b)	· Switching point			Control 5  Control rod travel mm 9
AA434D	52,5-54,5	1425	1400 700 500	56,5-60,5 52,5-55,5 52,0-56,0	100	mind. 7,9		./.

Checking values in brackets

<b>B.</b> Governor Setting	or Settings	. Governo	E
----------------------------	-------------	-----------	---

	rev/min	Control re	$\sim$	Intermediate Degree of deflection		Control rod	Lower rated Degree of deflection	speed	Control rod travel	L'AVE!	
of control	rodtravel mm	mm rev/min	(2a)	of control lever		mm ④	of control lever	rev/min	mm 3	rev/min	mm 11
1	2	3		4	5	6	/	8	9	10	
PRO 48 I	160	Z R	QV 300	1000	1425	AA 435 D					
68±1,5	1425 1450 1500 1550 1660	12 - 10 - 5 - 0 - 0	15,2 13,8 10,8 7,5	58 ±1,5	900 1000 1050 1100 1140	11,8-15 6,6-9,8 3,5-6,5 0 -3,2		200 300 500 600 780	7 - 8 4,4-6,8 2,2-3,8 1,2- 3	900 700 400	0 0,4-0,6 0,9-1,1

Torque control travel a

AA 435 D AA 504 D

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics (5a) speed (5b)	Starting Idle switchir		Inter speed	mediate Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes 5	rev/min	cm3/1000 strokes 7	rev/min 8	travel mm 9
1000	52,5-54,5	1430 - 1450	500 700 1425	52,5 - 55,5 52,5 - 55,5 56,5 - 60,5	700			

Checking values in brackets

* 1 mm less control rod travel than col 2

#### **B. Governor Settings**

#### RQV 300 - 1000/1425 AA 504 D

 v/min	Control rod	(1a)	Degree of Control rod			Lower rated speed  Degree of Control rod deflection travel			-	Torque-control travel		
d travel		(2a)	of control lever		mm mm		of control lever	rev/min	mm 9	3	rev/min	mm 11
1425 1450 1500 1550 1640	9,2-	15 13,2 10 6,8	62±1,5	1000 1050 1100 1300 1350	11 - 8 - 4,4-7 1,3-1 0		10±1,5		7 5 2	- 8 - 7 -4,5 5-1,7	1000 700	0 0,9-1,1 1,4-1,6

Torque control travel a =

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem	olivery i stop up. 40°C (104°F) 2 cm³/1000 strokes	Rotational-speed (20) limitation intermediate speed rev/min	Fuel deliv high idle s	rery characteristics 5a speed 5b cm³/1000 strokes	Starting Idie switchin rev/min		Torque- travel	Control rod travel
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than coi. 2

E18

3

Testoil-ISO 4113

# **Test Specifications** Fuel Injection Pumps 3 and Governors

WPP 001/4

PE 4 A 70 B 120 RS S 897 EP/MV 80 A 95 PE 4 A 70 C 420/3 RS 1128 EP/MV 80 AA 95 supersedes

company:

Fordson

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 5	Fuel delivery cm ³ /100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
	∙6	1,2 - 1,9				
1000	12 18	6,5 - 7,0 10,9 -11,9	0,4			
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

See page 2

#### **B.** Governor Settings

	Leakage Control-rod travel limitation breakaway*		Control		Auxiliary auxiliary		Torque control			
Torque control travel				Control rod travel		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
шш	mm water col.	s	mmw.c.	шш	mmw.c.	mm	mm w.c.	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
- Setting	500-480 of push	10 valve	- at	-	-	-	380 400 430	9,6-10,4 6,7-10,4 5,3- 6,5		
425 mm WG (approx. 6.4 mm control-r control rod travel test (cols. 4-11) = rotational speed 500 rev/min. adjust breakaway (cols. 4-5) by means of shims* cam adjustment (88-9-07-8) by means of shims*					od tra	ivel)	500 600	3,2- 5,2 0 - 1,7		

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-load s Test oil te	stop screw mp. 40°C (104°	F)	Fuel deliv	very character	istics	idle (stop idle (imb	o)** alance)	Control road travel from full-load to l idle
rey/min	Vacuum mm wat. col.	cm ³ /1 <b>000</b> strokes	rev/min 4	Vacuum mm wat, col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col.	mm cm³/1000 strokes 8
1000	0	51 - 53						

Checking values in brackets

Full-load setting, Section C) prior to governor setting, Section B)

Governor setting with adjustment of push valve:

- 1. The vacuum connection is made in the normal manner at the vacuum chamber of the governor housing. The second connection remains open. Attach control-rod-travel measuring device.
- 2. Set vacuum to adjust push valve.
- 3. Alternately open and close additional connection by applying pressure with fingers and in doing so observe control-rod travel. The control rod moves as a result of the difference in pressure ahead of and downstream of the push valve.
- 4. Unscrew auxiliary push valve in governor housing by turning it in a counterclockwise direction towards STOP until control rod (when effecting closing and opening as described under 3.) no longer moves.
- 5. Test speed regulation of governor in accordance with Columns 8 and 9.

②

**Festoil-ISO 4113** 

# Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 9,8 c

Edition 5.72

En

PE 6 A 85 B 310 LS 69, 172 (312)..S191,312,337 C..S2044,2084

C.D. D 2084

RQ 200/950 A103D, 124 D ..103D,244D,328D ..244D,328D,482D

ROV 200-500/950 AA 462

supersedes company:

10.64 Büssing

engine:

U 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel • mm 2	Fuel delivery  cm³/100 strokes 3 "B" U. "C"	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	_12	9.6 - 10.4	0,4	. 9	4,1 - 4,5	
1000	9	4,9 - 5,5		6	0,6 - 1,4	
200	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

RQ.. 103 D 124D, 244D, 328D,482D

Checking of slider PRG check Control retravel rev/min 1 2	(1)		Control	Test spec Control red travel	cifications 4) rev/min	Control red travel	Test spe	cifications 5 Control rod travel mm		Control Control rod travel mm 12
450 15,7- Breakaway before n	not	450		970 990 1010 1050	13,8-14,1 5,0-12,5 0 - 8,0 0	0	180	6,8-8,1 5,2-7,4 2,4-5,0 0	400 600 800	15,6-16,2 14,9-15,3 14,1-14,4

Torque-control travel on flyweight assembly dimension a =

0,6 m

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil tem		Control rod stop 3a	Fuel delive	ery characteristics	3	Starting for	d Control
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
950	97,0 - 99,0	500	700 500	100,5-103,5 107,5-110,5		100	mind. 13,5
When	checking extend	by ± 1 cm³ (co	1 2 an	d 5)!			

Checking values in brackets

#### **B.** Governor Settings

RQV .. AA 462

Upper rated s	peed			Intermediate rated speed				Lower rated	speed			Torque-contro	
Degree of deflection	rev/min Control	Control rod	(la)	Degree of deflection	•	Control rod travel		Degree of deflection		Control root travel		trave	_
of control lever	rodtravel mm	mm rev/min		of control lever	ten/wiu	mm	4	of control lever	rev/min	mm	3	rav/min	mm
1	2	3		4	5	6		7	8	9		10	11
ca.66	950 1000 1060 1140	15,0-1 8,8-1 0 - 0			480 550 650 900 1030	14,7-1 3,0-1 2,5- 2,5- 0	2,0 3,5			6,1-8, 4,7-7, 2,4-5, 0	2	-	-
								(3a)					

Torque control travel a =

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	rery characteristics 5a speed 5b	Starting dile switchir	$\mathcal{O}_{\mathcal{O}}$	Inter speed	mediate Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm3/1000 strokes 7	rev/min 8	travel mm 9
930	103,5-106,5	960						

Checking values in brackets

* 1 mm less control rod travel than col 2

### **B.** Governor Settings

Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection		Control rod travel	ta	Degree of deflection		Control rod travel	Degree of deflection	!	Control rod travel		1
of control lever	rod travel mm	rev/min	(2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	wu.
1	2	3	)	4	5	6	7	8	9	10	11
											:
							(3a)			1	
								<u> </u>		<u> </u>	

Torque control travel a =

# C. Settings for Fuel Injection Pump with Fitted Governor

Full-load Control-r Test oil te		intermediate speed	Fuel deliv high idle s	very characteristics 5a	Starting tdle switchin	fuel delivery 6 ng point	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1			ļ		i			
		İ						
1								
1								

Checking values in brackets

**Testoil-ISO 4113** 

VDT-WPP 001/4 KRU 5,8 k 10.66

En

PE 4 A 85 B 320 LS 552	EP/RSV 400-1950 AO A 101	(1) supersedes	
TE 4 N 03 D 320 E3 332	EP/RSV 400-1950 AO A 159 D	(2) company: Krupp	į
PE 5 A 85 B 320 LS 553	EP/RSV 400-1900 AO A 101	(3) engine: D 459	}
	EP/RSV 400-1900 AO A 160 D	(4) D 573	•
PE 4 A 85 C 320 LS 2043	EP/RSV 400-1950 AO B 190 D	(2)	
PE 5 A 85 C 320 LS 2045	EP/RSV 400-1900 AO B 101	(3)	
All test specifications are valid for Bosch Fuel	njection Pump Test Benches and Testers		

#### A. Fuel Injection Pump Settings

Port closing at prestroke

4.7 + 0.1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strakes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	8,9 - 9,5	0,4			
1000	6 9	2,2 - 3,0 4,4 - 4,9				
200	9 21	2,6 - 3,4 15,1 -17,4				

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

..A 101

Degree of deflection of control	rated speed rev/min 2	Control rod travel mm 3	Intermediate rated speed  Degree of deflection of control sever rev/min mm  4 5 6			4 Lower Degree of deflection of control lever	rated spe rev/min 8	Control rod travel mm	3 for rev/min 10	qué control Control rod travel mm 11
ca.56	1900 2000 2100	16,0 11,0 4,6	withou spring		iliary	ca.21	400 200 320	6 19,0-21,0 8,1-9,8	1850 700	0
5	2000 2080 2160 <del>2300</del>	9,9-11,9 3,8-8,0 1,0-3,6	with auxiliary spring				400 600 750	5,7-6,3 0,8-3,2 0 - 1	500	1,2-1,8

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	5a) idle stop		
Test oil temp rev/min 1	1	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes	rev/min 8	Control rod travei mm 9	
1850 1900	90,5 - 92,5 96,0 - 98,0	1910-1930 1960-1980						r <u>1900(3)</u> r <u>1950</u> (1)	
								./.	

Checking values in brackets

	ontrol mm mm rev/min		•		Control- lever deflection in degrees 7	- Lower	rated speed  Control rod  travel  mm  9	3 To	rque control Control rod travel mm	
ca.57	1950 2000 2100	16,0 13,5 7,8	witho sprin	ut aux g	iliar	ca.21	400 200 400	6 19,0-21,0 5,7- 6,3	1930 1600	0 0,2-0,4 0,6-0,8
29	2100	9,4-11,7 5,8- 9,2 1,7- 4,5 0.3- 1.0	with a spring	auxili g	ary		700 1000	1,0-3,6	500	0,8-1,0

# C. Settings for Fuel Injection Pump with Fitted Governor

<b>C</b>	Il-load stop emp. 40°C (104°F)	Rotational- speed limitat.		nel delivery paracteristics	Starting (	uel delivery 5	Idle stop		
	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
1900	96,0-98,0	1960-1980	1600 1200	98,5 - 101,5 98,0 - 101,0	100	20 mm RW	(0)		
		,				Adjustment	. (2)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

#### **B. Governor Settings**

	160	D
• •	: 00	

	rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3		iate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	rev/min	rque control Control rod travel mm ¹
ca.56	1900 1980 2080	16,0 12,0 .6,0	witho	out au	xiliaı	ca.21	400 200	6 19,0-21,0 5,7- 6,3	1880 1600	0 0,3 - 0,5
29	1980 2040 2160 2300	11,2-12,8 7,0-10,0 1,5- 4,3	with spri	auxil ng	iary		400 700 1000	1,1- 3,5 0 - 1	1200	0,8 - 1,0 0,8 - 1,0

# C. Settings for Fuel Injection Pump with Fitted Governor

(3)	ill-load stop	Rotational- speed limitat.	11.32	Fuel delivery characteristics		uel delivery 5	48 Idle stop	
rev/min	emp. 40°C (104°F) cm²/1000 strokes 2	changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		travel mm 9
1850	87,0-89,0	1910-1930	1500 1200	91,5-94,5 91,5-94,5	Adju	stment(4)		
								·

WPP 001/4 KHD 6,1 a

2. Edition

En

EP/RSV 325-1400 A8B674D, 707 D

supersedes company:

5.74 KHD

RS 2415 RS 2532 325-1150 A8B674D, 707 D

EP/RS 325/1325 AOB691D, 709 D

BF 6 L 913 engine:

**[estoil-ISO 4113**]

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

PES 6 A 85 D 410/3 RS 2366

1.9 + 0.1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery  cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			1
	6	0,6 - 1,4				
200	9	1,4 - 2,2	**	* See p	age 3 - 4!	

Adjust the fuel delivery from each outlet according to the values in

**B.** Governor Settings

EP/RSV 325-1400 A8B674D, 707D

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	Degree of deflection of control lever	rev/min	ced Control rod travel mm	(3) Tor rev/min 10	que control Control rod travel mm
ca.69	1400 1450 1500	16,0 10,5 4,0	withou spring		iliary	ca.20	325 200 325	5,5 19 - 21 5,2-5,8	1400	0
⑤ ^{a.68}	1406 1510 1600	ca.10,0 ca. 4,0 0,3-1,5	with a spring		ary 		500 660	1,2-3,3 0 -1,5	500	1,2-1,4

The numbers denote the sequence of the tests

# C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	Full-load stop  6 Rotational-speed limitat.			Gal delivery characteristics		fuel delivery	(5a) idle stop	
Test oil temp rev/min 1	. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes	rev/min 8	Control rod travel mm 9
LDA	0,7 bar		LDA	0,7 bar				
***	1	***	***		100	119,5-	325	5,5**
			LDA 500	U bar 43,5-47,5		129,5		
(inreas	e by ± 1,0 c	m³!)						

Checking values in brackets

1 Uppe	r rated speed Control rod	Control rod	Intermed	diate rated	speed	Gontrol-	- Lower	rated speed Control rod	1 3 1	rque control Control rod
deflection of control lever	mm 2	mm rev/min	4	5	6	lever deflection in degrees 7	rev/min	travel mm 9	rev/min	travel mm
ca.56	1150 1200	16,0 11,1	with	out au	xiliaı	ca.21	325	5,5	1130	0
	1250	5,4	sprii	ng			200 325	19 - 21 5,5-5,8	500	1,0-1,2
29	1220 1300 1380	7,5-10,4 1,3- 3,6 0,3- 1,5	with spri	auxil ng	iary		500 660	1,4-3,4 0 -1,5		

# C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat.	39 Fu	el delivery aracteristics	Starting t	tuel delivery 5	<b>4a</b> ) Idi	e stop
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel inm 9
LDA ***	0,7 bar	***	LDA *** LDA 500	0,7 bar 0 bar 43,5 - 47,5	100	119,5 - 129,5	325	5,5**

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

## **B. Governor Settings**

EP/RS 325/1325 A0B691D, 709 D

10.0	r rated speed Control rod travel mm		Intermediate rated speed 4 5 6		Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	11 5 /	rque control  Control rod  travel  mm  11	
VH ca. 70 FH max.	1325 1400 1480 1550 1620	15,8-16,4 12,1-13,1 7,4-8,8 2,8-4,8	-	-	-		325 270 400 550 900 1200 1400	8,3 9,0-9,8 6,0-6,8 3,5-4,0 3,3-3,9 2,4-3,0	1300 1000 600	0 0,8-1,0 1,2-1,4

# C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	speed limitat.		el delivery aracteristics	Starting !			
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA	0,7 bar		LDA	0,7 bar	100	119,5-		
***		***	***		''	129,5		
			500	43,5 47,5				
								./.
***	See page 3 - 4!							

Checking values in brackets

# D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 a

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

<b>~</b> '
Ø.
(C)
18
Testoil
Testoil-ISO 411
175
S
$\mathbf{I}$
4-2
IW

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

#### NOTES:

- ** Single-lever operation in the case of Liebherr excavators; therefore use shorter screw 1 423 400 031 and set it to 0.3 - 1.0 before stop.
- 2. Test EP/RS governor in accordance with WPP 001/4 KHD 1 c.
- 3. Perform LDA (manifold-pressure compensator) adjustment in accordance with W 420/305.
- 4. Dimension H = 22.5 mm basic setting of LDA.

# C. Settings for Fuel Injection Pump with Fitted Governor

travel	engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel deliv	very characteristics	idle	fuel delivery	Intermediate rotational speed Torque-control	
1 2 3 4 5 6 7 8		PC (104°F) 71000 strokes	rev/min rev/min cm ³ /1000 strokes 3 4 5					travel	mm

05 6 1	040 DEC C A	n nc2266	2415	E on B now	m output /	rov/min
BL 6 L	<u>913</u> - PES 6 A	DK52300,	2415	-L- OL B-home	er output /	164/11111
1400 1400 1325	88,0 - 90,0 84,0 - 86,0 87,5 - 89,5	1420 1420 1340	800 800 800	80,0-83,0 66,0-69,0 82,5-85,5	160 PS / n = 142 PS / n = 160 PS / n =	2800
1325 1250	82,5 - 84,5 87,0 - 89,0	1340 1270	800 800	66,0-69,0 84,5-87,5	140 PS / n = 160 PS / n =	
1250 1250 1200 1200 1165	83,0 - 85,0 81,0 - 83,0 86,0 - 88,0 78,0 - 80,0 84,0 - 86,0	1270 1270 1220 1220 1180	800 800 800 800 800	76,0-79,0 69,5-72,5 84,5-87,5 68,0-71,0 84,5-87,5	148 PS / n = 140 PS / n = 156 PS / n = 135 PS / n = 152 PS / n =	2500 2400 2400
1150 1150 1100 1075 1075	83,5 - 85,5 80,0 - 82,0 82,0 - 84,0 82,0 - 84,0 78,0 - 80,0	1165 1165 1115 1090 1090	800 800 800 800 800	72,0-74,0 84,5-87,5 84,5-87,5	152 PS / n = 142 PS / n = 147 PS / n = 144 PS / n = 136 PS / n =	2300 2200 2150
1050 1000 1000 900 875	76,5 - 78,5 82,5 - 84,5 77,0 - 79,0 82,0 - 84,0 68,0 - 70,0	1065 1015 1015 910 885	800 800 800 800 800	84,5-87,5 72,0-75,0 84,5-87,5	130 PS / n = 137 PS / n = 130 PS / n = 125 PS / n = 106 PS / n =	2000 2000 1800
750 750	85,0 - 87,0 78,0 - 80,0	760 760	-	-	105 PS / n = 100 PS / n =	

**Festoil-ISO 41** 

# Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 MAN 11,6 i Edition 2.64

En

PE 8 A 70 B 410 LS 138 S 1080 EP/RSV 250 - 900 A 7 A 355 MAN-Nr. 321 - 329

supersedes 3.8.61

company: engine

MAN D 1548 M

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2.35 + 0.1

mm (from BDC)

RW 12

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8	0,3			
	6 12	2,0 - 2,6 6,9 - 7,5				
200	6	1,1 - 1,7 rence between c	hntmol-mo	t thaugal	12 mm and 21 -	
4.5-5.5°ca		rence between c	phero 1-ro	u craver	iz nun and zi =	

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated speed  Degree of deflection of control lever rev/min mm  1 2 3			Degree of Control rod deflection deflection of control control			Degree of deflection of control lever rev/min rev/min 9			3 Tor rev/min 10	que control Control rod travel mm 11
ca.54	900 930 950	16 10,8 6	withou spring		il iary	ca.21	250 100 250	6 19 - 21 5,7-6,3	880 450	0
<b>⑤</b>	930 950 980 1050	9 - 12 3,6- 8 1,2- 3	with auxiliary spring				300 350 450	3,5-4,8 0,5- 3 0 - 1	300	1,2-1,8

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

6 Rotational-

		1	speed limitat.  Note: changed to rev/min 3	racteristics cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	Control rod travel mm
Nr. 321 Nr. 322	880	82 <b>-</b> 84 79 - 81	910 - 920 910 - 920				
Nr. 323 Nr. 324 Nr. 325	880	- 72 - 74 72 - 74	910 - 920 760 - 770				
Nr. 326 Nr. 327	-	-	-				

(3a) Fuel delivery

Checking values in brackets

* 1 mm less control rod travel than col. 2

(5a) Idle stop

Starting fuel delivery

Nr. 328 Nr. 329 730 63 - 65 980 73 - 75 760 - 770 1010 -1030

2 Full-load stop

**Testoil-ISO 4113** 

VDT-WPP 001/4 DAI 5,7 g Edition 8.66

En

PES 6 A 80 C 410 RS 2085	X EP/RSV 350-1275	A2 B208DL supersedes	
RS 2085		company	Daimler-Benz
RS 2085		engine ⁻	OM 352-Unimog
PES 6 A 80 C 410 RS 2194	X,W,X		65 PS
See overleaf for special	governor setting		70 PS ./.
Measure pump with suction	n-gallery flushing	(overflow valve)!	80 PS ./.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuél delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	9	3,8 - 4,3				
	6 15	1,2 - 2,0 9,8 -11,0	0,3			
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

350-1275

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	· 10 ·		
Degree of deflection of control lever	rev/min	Control rod travel mm	deflection travel of control			Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.63	1275 1400 1480	16,0 10,4 5,8	withou spring		iliary	ca.30	350 200 350	7,5 19 - 21 7,2-7,8	1275 1050 800	0 0 0,5-0,7
5	1450 1520 1600 1750	5,4-9,0 3,1-5,5 0,6-3,6 0,3-1,0	with auxiliary spring				500 650 800 950	5,4-6,4 2,3-5,0 0 -3,1	600 350	1,3-1,5 1,4-1,6

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

② Full-loa	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	(5a) Idio	stop
Test oil temp rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1275	34,5 - 36,5	1300	1000 800 500	33,5-36,5	100	7,9-9,9		./.

Checking values in brackets

Upper rated s	peed		Intermediate	rated spe	ed	Lower rated	speed		Stirting et	eeve travel
deflection	Control rodtravel mm	rev/min (2a	ree of ation trot	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
ca.64	1300 1400 1490 1480 1600 1800	16,0 11,3 6,3 5,5-8,5 1,8-4,5 0 - 1	without spring with au spring	auxi	iary	ca.30	350 200 350 600 950	7,5 19 - 21 7,2-7,8 3,3-5,5 0 - 1	1300 950 800	0 0 0,5-0,7 1,4-1,6

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	stop	Rotational-speed (2b) Ilmitation Intermediate speed	Fuel deliv high idle s	rery characteristics (5a)	Starting Idle switchin	_	Torque- travel	Control roo
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm3/1000 strokes	rev/min	travel mm
1275	37,5-39,5	1300	1000 800	34,5-37,5 35,5-38,5	100	7,9-9,9		
1400	37,5-39,5	1430	500 1000 800 500	36,0-39,0 33,0-36,5 33,0-36,0 33,5-36,5	100	7,9-9,9		

Checking values in brackets

* 1 mm less control rod travel than col. 2

#### **B. Governor Settings**

Upper rated s	speed			Intermediate	rated spe	ed		Lower rated	speed		Sliding sl	eeve travel
Degree of deflection	rev/min	Control rod	(1a)	Degree of deflection		Control roc	1	Degree of deflection		Control rod travel		0
of control	rod travel		(2a)	of control lever	rev/min	mm	(4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6		7	8	9	10	71
ca.69	1425 1500 1600 1580 1700 1880	16,0 12,6 6,8 6,0-8,6 2,3-4,8 0,3-1,6	3	withour spring with au spring	ıxilia			ca.30	350 200 350 500 700 950	7,5 19 - 21 7,2-7,8 5,4-6,4 1,0-4,4 0 - 1	550	0 0,7-0,9 1,2-1,4 1,3-1,5

Torque control travel a =

mm

The following applies in amendment to the test instructions:

Testing of fuel-delivery characteristics. however correct fuel delivery at  $n = 500 \text{ min}^{-1}$  - if necessary - by adjusting the spring retainer. Read off control-rod travel for next operation. Similar to (3a)

Adjustment of auxiliary idle spring. however set control rod at n=350 min⁻¹ with control lever to 2.0 mm less control-rod travel than that control-rod read off previously. Then screw in auxiliary idle screw and set such that control-rod travel is enlarged again by 0.5 mm. Similar to (4)

Otherwise the envisaged test operations apply.

**Festoil-ISO 4113** 

VDT-WPP 001/4 IHC 2.0 e Edition 10.68

En

PES 4 A 50 B 410 RS 34 RQV 200-825 A 32 D RS 34,70,90 -850 A 32 D RS 92,111 -850 A 32 D 3 A 50 B 320 LS 101 -850 A 87 D supertedes! company: engine: 9.64 IHC DED DD124 DF

All tout specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

1.7 + 0.1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,3			
	9 18	0,8 - 1,4 4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated	speed	Sliding sleeve travel			
deflection	rev/min Control	Control rod travel	<b>(a)</b>	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	. ①	
	rod travel mm	mm rev/min 3	<b>2a</b>	of control lever	rev/min 5	mm 4	of control lever	rev/min 8	mm 3	rev/min	mm 11
65±1,5	850 880	15 - 1 10,6-15,						100 200	7 - 8 5 - 7	850 800	0 - 0,2
	920 960 1030	4,8-11, 0 - 7, 0					10±1,5	400 500 580	1,4- 3 0 - 1,6 0	700 600 500	0,2-0,4 0,3-0,5 0,4-0,6
							3a)				

Torque control travel a = 0.5 mr

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2				rery characteristics 5a	Starting Idle switchin		Torque-control 5 travel Control rod	
rev/min	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
800	29,2-30,2	855-870	850 500	26,7-29,7 28,7-30,7				

Checking values in brackets